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EDITORIAL.

EUROPEAN CHRONICLES.

TUBERCULAR IMMUNIZATION.—In one of my last chronicles I related the announcement made by Prof. von Behring that he had succeeded in giving animals, and particularly bovines, immunity against tuberculosis.

This declaration of the illustrious savant was the forerunner of a work which has just been published under the title of "Tuberculosis," in the *Beiträge zür experimentallen Therapie*, which treats only of the first part of his experiments already realized or in the way of execution.

From the consideration of this scientific work two fundamental conclusions are derived, viz.:

(1) *That it is a fact established, resting on positive ground, that, with the aid of an attenuated virus, cattle can be vaccinated against tuberculosis, at least against experimental tuberculosis; time will tell if, as it is probable, vaccination by the method of Behring will confer as well a sufficient immunity against spontaneous tuberculosis, and if, on the other side, it is applicable in general practice.*

(2) *It is also demonstrated that human and animal tuberculous bacilli differ only by the intensity of their virulency. This, varying for bacilli of a given species of animal, may be experimentally transformed into a stronger or a weaker virulency, equivalent to that of another species.*

Already, previous to the first communication of Behring, Prof. MacFadyean had mentioned in his excellent journal (June, 1901,) the possibility of granting an antituberculous immunization in bovines by successive vaccinations with aviary bacilli and with those of mammifaræ.

The new method of the German professor confers also an idiopathic immunity—that is, through the intermediacy of the virus itself, more or less attenuated. It is based on the same principle as immunization against variola, rabies and anthrax, and consequently differs from the antitoxic or bactericid serotherapeutics in general, as those used, for instance, against tetanus, diphtheria, pest or cholera. In fact, it is a vaccination that Behring proposes to call *Jennerisation*, the name of *Pasteurisation*, that he would have preferred, being already used to designate a special mode of sterilization for milk.

Behring has observed that immunization against tuberculosis can be obtained with various attenuated bacilli, and principally with those of bovines, as with those of man. But as the accidents are much more severe and lasting when bovine bacilli are used, the Professor has left them aside in practice. He also ignores human bacilli, having a virulency for bovines resembling that of bovine bacilli. And *actually resorts exclusively, as vaccine, on cultures of human bacilli No. 1*, kept for several years at the Institute of Marbourg, which are bacilli obtained from sputas of a tuberculous man. The innocuity of those cultures, used in weak doses, has been tested by numerous trials.

According to Behring, here is the manner to proceed, and is most convenient in practice in the fight against tuberculosis: *Operate on young bovines, from five to seven months old, which have not reacted to tuberculin; give them by intravenous injection a first dose of 0,001 gramme of a culture on serum (No. 1) from four to six weeks old; four weeks later make a second intravenous injection with a dose twenty-five times stronger—say 0,025 gramme of the same culture.*

It is not exactly certain if this second dose is sufficiently

strong as a final dose. Practice and experience will decide those questions later on.

Such is the method of Behring vaccination, which is harmless, simple and not costly.

The acquired immunization is such that vaccinated subjects resist the criterium injection of a dose of very active virus, always fatal for witnesses, which die in a few weeks with miliary tuberculosis, while they present no lesion whatever at the autopsy.

Such are briefly the general outlines of the work of Prof. Behring; of course, the method still needs the consecration of time and experience before it is definitely adopted as useful and applicable in the fight against tuberculosis, but the step forward is immense, and there can be no doubt that success will be the ultimate result in this severely engaged battle.

In relation to the identity, generally admitted, of bovine and human tuberculosis, Behring is categorically in favor of it and confirms all the conclusions of the other observers who have proclaimed it before and since the question was again agitated by Prof. Koch in London.

* * *

ADRENALIN is comparatively a new medicine, but its effects are such that it will not be long before it has obtained a most important place in therapeutics. To the physiological point of view, it is above all a vaso-constrictor of great power, and has a marked action on blood pressure, on circulatory exchanges, and even on the temperature of the body. To the practical point of view, it has also many applications, but at the present time it has two principal ones: (1) in laryngology and ophthalmology as a vaso-constrictor and hæmostatic; (2) in general therapy as a hæmostatic.

Operations on the nose and nasal cavities in man have been performed easily with its use, and sprays or powders have been advantageously used in inflammation of the nasal cavities.

Ophthalmology has derived much benefit by its use; in 30

seconds after the introduction of a solution of adrenalin in the eye it produces a complete ischæmia of the conjunctiva, which lasts one hour and a half. Adrenalin in such cases has the advantage of producing no trouble of the cornea, and, besides, is without effect on the pupil; it reduces the lachrymal secretion.

What greater advantages could be expected for the treatment of iritis, glaucoma, etc. Associated with cocaine it has allowed two enucleations of the eye and the arrest of a hæmorrhage secondary to the removal of a cataract without pain and without hæmorrhage.

Adrenalin possesses many other applications in general therapy, but what I have said is enough to recommend it to veterinarians. How many affections of the eye could be properly and satisfactorily treated, and how many eyes might be saved.

The only objection that can be made is the cost; it is said to be $20,000 a pound; but as the solutions which are used are very weak, the objection is considerably reduced.

* * *

THE QUESTION OF THE USEFULNESS OF VIVISECTION seems to be again the order of the day, and under the heading of "Is Vivisection Indispensable?" I resume the answer of Dr. Foveau de Courmelles in one of the medical journals of Paris.

A feminine movement is rising against the pain imposed on animals under the pretext of science and of physiological teaching. First laughed at, this movement embraces to-day a great number of physicians, and one can now, without being laughed at, ask if, as a question of education, vivisection is indispensable? Already, in scientific matter, where doubt seems less permitted, it is discussed; in toxicology, the non-comparability of man and animal shows that the last gives wrong notions for the first; in anatomy, the cadaver is sufficient; in physiology, many works to-day left aside show the insufficiency of the information given by the living animals experimented upon. In the domain of education, the impossibility of making every

student perform vivisection, that no less serious one of showing to all, in a hall, a physiological experiment as well as for a surgical operation, do not speak in favor of vivisection. And, again, with anæsthesia, which ought to be resorted to in all cases, where anyone exhibits publicly living animals which they submit to martyrdom under the pretension of showing such or such facts—for all these reasons, those experiments must be stopped; they prove nothing; they are made by anyone, and are public schools for cruelty, and vivisection must have scientific limits.

The conclusion of Dr. F. de Courmelles is certainly that of every scientific investigator. Vivisection cannot be prevented, but must be regulated, as it is in many countries. If it was altogether forbidden, how could medical science advance? Then of what use are all of his first objections?

* * *

AN UNUSUAL MODE OF INOCULATION.—Of course, when rabies is threatening, no precaution is too great to guard against it, and yet, notwithstanding how numerous the cases of inoculation, of course bites are the most common; but in any event when the saliva comes in contact with the abraded skin, the danger is there. I have read lately of a case which is certainly very curious, I might say exceptional, and yet belongs to the same general condition. It occurred in some town in the lower part of France. A young woman, whose hands were badly chapped, had touched some food upon which a rabid dog had dropped its infectious saliva. A few weeks later the poor woman was taken with symptoms of hydrophobia, and died.

* * *

BIBLIOGRAPHIC NOTES AND ACKNOWLEDGMENTS.—To close this chronicle, I am pleased to acknowledge the reception of the following, and to address their authors my warmest thanks: From the workers of the Bureau of Animal Industry, "Emergency Report on Surra," "Apoplectic Septicæmia in Chickens," "Scabies in Cattle," "American Breeds of Beef Cattle," "Index Catalogue of Medical and Veterinary Zoology,"

"Market Classes of Horses," "Miscellaneous Papers on Animal Parasites," and also the "Seventeenth Annual Report of the Bureau." From our friend, Dr. Dalrymple, his article on the "Value of Coöperation in the Sanitary Control of our Periodic Epizoötics of Anthrax," published in the New Orleans *Medical and Surgical Journal.* From Dr. Samuel S. Buckley the catalogue of the Maryland Agricultural College. And, finally, a "Veterinary Pharmacopœia of Bazaar Drugs," by Dr. J. D. E. Holmes, which contains a long list of indigenous plants of India used in veterinary practice, with their scientific names and their vernacular synonyms, their indications, and doses, etc.—a most interesting little work. A. L.

TO ENFORCE THE NEW YORK LAWS.

At last the Empire State veterinarians are in position to realize the benefits of the excellent laws to protect the public and themselves which were passed several years ago, and which they have permitted to become inoperative through their supineness and indifference. The REVIEW has felt a certain amount of responsibility in the matter, as the organ of the profession of the State, and has allowed no opportunity to pass wherein it saw a chance to draw the attention of its New York readers to the condition that was rapidly developing. Men without legal qualification were becoming emboldened through freedom from molestation, and were undertaking the prerogatives of regular practitioners. It is self-evident that the longer they are permitted to perform such functions the more difficult it will be to secure their withdrawal or prosecution, should they insist upon standing trial. It is, therefore, with genuine satisfaction that the REVIEW notes the action of the New York State Veterinary Medical Society at its annual meeting in September, when it unanimously adopted a resolution instructing the President to appoint a Prosecuting Committee of three to take up this matter. In doing so the action of the Society was not half-hearted; it did not indulge in meaningless platitudes; but it disposed of the question in the only way that seemed

feasible, and the one which presents the greatest chances of success. It is mandatory that the Prosecuting Committee shall, when supplied with funds for that purpose, engage competent counsel, whose duty it shall be to proceed to any section of the commonwealth that the committee directs, and there bring to trial any offender against whom sufficient evidence can be secured to give promise of a successful prosecution. The committee is to operate under authority of the Society, and the evidence submitted by practitioners in good standing will be collected by it prior to submission to the counsel, and if there is a fair prospect of a successful issue he will be instructed to proceed to the locality and perfect the case for trial.

This will, of course, require a considerable sum of money, but to the large number of practitioners in the State it will be merely nominal, and it is expected that a few vigorous prosecutions will put an end to the offences. The Society's share of the fines will go a long way toward reimbursing it, and in the end the expense will be very light.

At first it was suggested that each member should be assessed a sum sufficient to establish the requisite amount; but it was shown that this arrangement would be unfair to the members and discourteous to the practitioners of the State who are not associated with the Society; and as the effort being made is for the benefit of all, every licensed man should have an opportunity to make a voluntary contribution. Some veterinarians are in position to be more liberal than others, and they should have the opportunity to subscribe as much as they are pleased to give, while those who are less fortunate should not be debarred from the privilege of contributing what they can conveniently spare. There are about eight hundred (800) registered veterinarians in the State; but it is more than probable that not more than six hundred (600) are in active practice, and who would be directly benefitted by the efforts of the committee. If each one would subscribe the small sum of five dollars ($5.00) it would make a splendid fund of three thousand ($3000) dollars, which would be all-sufficient to do the work in

a prompt and complete manner. But it can hardly be hoped that all will respond to the committee's appeal, and so it would be well for those who can do so to increase the amount of their offerings to ten ($10) dollars, which will offset some of those who fail to send in, as well as to replace the deficiency in cases where a smaller amount than the sum first mentioned is pledged. Everyone, therefore, is thus enabled to give according to his ability. The REVIEW feels that the undertaking can and will be a perfect success, and will start the fund by a subscription of twenty-five ($25) dollars, which the committee can have upon notification.

A SAD EMPHASIS of the precautions which veterinarians should exercise in the many surgical operations which daily practice imposes is given elsewhere in this number by the death of young Dr. Petty, of North Carolina, who was performing a tenotomy for the cure of stringhalt, when he was violently thrown upon the ground and fatally injured.

IN answer to a Western correspondent, we beg to say that the editors of the REVIEW reserve the right to reject an article sent to it for publication when in their judgment it lacks the merit of originality or other value than being a true copy of someone else's writings. When an alleged "author" seeks to gain publicity by indulging in flagrant and brazen plagiarism, the waste-basket is the proper course for the manuscript to take, unless return postage accompanies it.

THE editor of the REVIEW, in writing to a valued collaborator, thanking him for a splendid illustrated original article (which will begin in the December number) said: "We can insure you the largest number of veterinary readers ever held by a veterinary publication in this country." We add in reference to the character of the journal referred to, the words of a Western reader: "I have read the REVIEW since Volume X, and all other journals published in this country, together with several

foreign ones, and I unhesitatingly, assert that for filling the veterinary field in all its phases (from the heaviest scientific articles to the news of the profession), the REVIEW accomplishes the object with credit to herself and the profession which she so well represents." We simply reiterate that the REVIEW is just what the profession makes it; all the credit is theirs, and we believe that they are producing a very creditable magazine.

"IN medicine, we make more mistakes by not looking than by not knowing."—(*Sir William Gull.*)

THE ONTARIO VETERINARY COLLEGE opened its session on Oct. 15, with a lecture by Principal Smith. A large class of students were present from all parts of North America, and some from Great Britain.

MOLASSES AS A FOOD FOR HORSES is being tested in many stables in New York and Brooklyn, largely through the prominence given to the subject by the excellent paper read before the meeting of the New York State Society by Dr. George H. Berns, which was published in the October REVIEW. We know of a single instance where a young coach horse, purchased a year ago, and which remained thin and spiritless ever since, despite various efforts to induce an improved condition, when placed upon molassed food, gained flesh and improved in driving qualities so rapidly as to cause the greatest wonderment among those who were cognizant of the experiment.

"DIPPING SHEEP FOR PROFIT."—We are in receipt of a letter from the Zenner Disinfectant Company, 24 Bates St., Detroit, Mich., in which they say they still have a few copies of "Dipping Sheep for Profit," which they will be pleased to send, free of charge, to the readers of the AMERICAN VETERINARY REVIEW. This is a very interesting little volume, containing articles from Prof. Plumb, of Ohio Experiment Station; Prof. Mumford, of Illinois Experiment Station; Prof. Shaw, of Montana Experiment Station; Prof. Hickman, of Ohio Experiment Station, and also from John A. Craig, of Iowa; Geo. Allen, of Illinois; G. Howard Davidson, of New York; Richard Gibson, of Ontario; Geo. Harding, of Waukesha, Wis. It also contains a treatise on scab upon sheep, which is considered a very accurate diagnosis and method of treatment for scab.

ORIGINAL ARTICLES.

CONTRIBUTION TO THE STUDY OF CANINE PIROPLASMOSE.

By MM. Nocard, of Alfort, and Motas, of Bucharest.

Translated by A. Liautard, M. D., V. M.

(*Continued from page 594.*)

PATHOLOGICAL ANATOMY.

The lesions are so much more accused that the disease has lasted longer. The cadaver is often icteric; the more or less severe yellow tint may be even of a chromic color.

The *spleen* is often hypertrophied three or four times its normal size, and lays along the hypochondriac region as far as the sternum. Its darker color reddens to the contact of the air; its consistency is diminished, but not to that of softening; in the rapid forms those conditions are wanting; but in return, preparations obtained by "*frottis*" (that is, by passing the material once gently over the slide) are very rich in hæmatozoæ.

The *liver*, engorged with blood, is little changed in appearance; sometimes it has the aspect of a cardiac liver; the blood which escapes, or a section, is always much loaded with parasitic corpuscles. The biliary bladder, ordinarily distended, contains thick, syrupous or granular bile, dark green in color.

The *digestive mucous membrane* is rarely infiltrated and congested towards the duodenum.

The *kidneys* are ordinarily extremely congested; the capsule, easily removed, leaves exposed a great number of petechial spots of various sizes. On section, the cortical portion seems gorged with blood and covered with fine hæmorrhagic puncta. The blood which escapes from it is extremely rich in parasites.

Often the *lungs* contain small apoplectic centres; in very young animals, which die rapidly, it is almost the rule to observe acute œdema of the lung with abundant slightly reddish spumosities in the bronchii and the trachea.

The *pericardium* contains little bloody or citrine serosity; it is not rare to find numerous petechial spots towards the point of the heart or under the endocardium of the left heart.

The *lymphatic glands* are rarely altered.

The *medulla of bones* is almost always the seat of severe congestion, which makes it look like that of fœtal bone; it is soft, friable and contains a great number of parasitic corpuscles.

The *nervous centres* present nothing appreciable except a little congestion of the meninges.

All the changes of the blood which we have mentioned are found in all post-mortems: the heart and the large blood-vessels contain clots, of little consistency, formed entirely of fibrine floating in reddish serum heavily loaded with hæmoglobin.

The histological study of the organs shows that all those lesions proceed from the extreme distension of the capillary network through masses of corpuscles, most of which are gorged with parasites.

DIAGNOSIS.

Alone the constatation of the intra-globular parasite justifies the diagnosis of piroplasmose.

When one is in the presence of a dog, anæmic, with hæmoglobinuria or ictère, which is or has been covered with ticks, the suspicion of the presence of the disease is justified; the microscopic examination of the blood must be proceeded with, following the method we have indicated.

If a first examination is negative, it must be repeated two or three days in succession, as the parasites are often in small number in the chronic form.

VIRULENT PRODUCTS — MODES OF INOCULATION — INCUBATION—RESISTANCE OF THE VIRUS.

The parasite exists in the blood; all the vascular tissues can give the disease. We have principally used the blood in our researches; subcutaneous, intramuscular or intravenous inoculation transmits the disease with either form, as long as

the blood used contains parasites; injection in veins is the most rapid and surest way.

The richer in parasites the blood is, the younger the inoculated dog, the more severe also shall be the disease produced, and the quicker its development.

In all young dogs, a drop of rich blood is sufficient to give a fatal attack; 1 c.c. is necessary to render adult animals sick.

In the slow form of the disease, the blood is much less virulent than in the acute, leaving aside the quantity of parasites it may contain; even when inoculated in large doses, it ordinarily gives only a mild affection. In one of our series of experiments, the initial virus was taken from a dog in convalescence, whose blood still contained parasites; all the dogs of that series had the mild form of the disease; none died.

Whatever may be the quantity of inoculated blood, or its richness in parasites, and the mode of inoculation, always a certain time must elapse before the apparition of the first symptoms; if systematically, the blood of the general circulation is examined, parasitic corpuscles will scarcely be found before 36 hours; generally it is after two full days that the parasites appear, even with intravenous injection. If the inoculation has been made in the muscles or under the skin, the inoculation is between five and six days. In acute cases, death occurs in the average, three days after the apparition of the parasites; very young dogs die still quicker, 36 to 40 hours after. If, then, inoculation has been made into the veins, the animal dies, generally, the fourth or fifth day; if it has been inoculated under the skin, it may survive nine, ten or eleven days.

When the disease assumes the slow form, its duration varies very much; the animal may remain sick 30, 40 and even 60 days.

The blood, collected pure, preserved in a cool place (cellar) and in the dark is still virulent after 25 days in winter; we have found it inactive after 14 days in summer.

The blood loses its virulency when heated at 50° for one-half an hour, at 45° during one hour, at 44° during one hour

and one-quarter; it is yet virulent after being heated at 43° for one hour and one-half.

ETIOLOGY.

Nothing has more solid foundation than the part played by ticks in the development of bovine piroplasmoses. The handsome experimental researches of Smith and Kilborne, confirmed by those of Pound, Koch and Ligniéres, have proved that to transmit Texas fever, tick fever, red water, or tristeza, it is sufficient to deposit on the surface of the body of adult bovines, coming from uninfected countries, larvæ born of ticks (*Ripicephalus annulatus*) having lived on diseased bovines. Since, wherever the same disease has been observed (and its geographical area is immense), a close relation from cause to effect has been established between the apparition of hæmoglobinuria and the presence of ticks on the skin of the sick animals.

The great analogy which exists between the symptoms of piroplasmoses, whether in dogs or cattle, and specially the almost identity of the hæmatozoa in the two species, suggested the thought of an etiology of similar nature.

In all the observations made at Alfort, the sick dogs had been recently covered with ticks; some had them on still. All those that we have had belong to the species *Dermacentor reticulatus.*

It is probable that this specie is the ordinary agent of transmission of the disease, at least in France.* We cannot be positive, as we have not succeeded in infecting dogs by covering them with larvæ obtained from female ticks taken from our patients.†

* The piroplasmose of the South African dog seems due to a different ixode that Prof. Neuman has recognized as the *Hæmaphysalis leachi.*

† The paper of Lounsbury explained our failures: while the larvæ of the *Ripicephalus annulatus* may complete its evolution on the same bovine, those of the *Hæmaphysalis leachi* leave the dog on which they lived, at each brood; the hatching is completed on the ground or the bedding, the nymph and the adult tick must find a new host to prepare themselves for a new brooding or hatching; besides, it seems that neither larvæ or nymphs have the power to transmit the disease; adult ticks alone are pathogenous.

It is probable that the *Dermacentor reticulatus* acts as the *Hæmaphysalis;* as after see-

In almost all the cases that are known, they were in hunting dogs which had recently hunted in woods or brushes or had been kept in kennels infected with ticks.

Contrary to what is observed with the bovine piroplasmose, the very young dogs (from two to twelve weeks) are much more easily infected than adults, and with them the disease assumes a very acute form, always fatal.

Specificity of the Parasite.—Morphologically, the hæmatozoa of dogs is identical to that of bovines. However, it can develop only in the canine organism. We have found it impossible to give the disease or even show the existence of the parasite in the corpuscles of an animal of another species, no matter what mode of inoculation we used (subcutaneous, intramuscular or intravenous), what quantity of blood we inoculated, nor its richness in parasites: bovine, horse, sheep, goat, cat, rabbit, guinea pig, white rat, white mice, and pigeon remained entirely refractory.

CULTURES OF THE PARASITE.

All our attempts at artificial culture of the hæmotozoa of the dog have remained fruitless.

Defibrinated dog's blood, serum very loaded with hæmoglobin, blood made uncoagulable by the injection of leech extract in the blood-vessels of a fresh dog, have given no better results than the ordinary media.

If defibrinated blood very rich in parasites is placed in a hot chamber at 37°, sometimes an intense phagocytose of the infected corpuscles is observed; the parasites are also seen undergoing deep changes; they are never seen multiplying. Whatever may their initial form be, they rapidly become globular, rounded; their nucleus becomes central; then, by a kind of condensation or contraction of the protoplasm, they diminish in size until they seem to be reduced to the nucleus only.

The same changes occur also in the blood kept to the tem-

ing the larvæ deposited on the skin of our dogs of experiment get bigger little by little, we would see them disappear all at once before having passed to the state of nymph and be lost on the ground or in the bedding.

perature of the room; but they take place more slowly, and it is possible to follow exactly their steps. Already, after five or six days, the parasites are considerably reduced in size and seem to be reduced to the nucleus, surrounded with a thin layer of protoplasm, scarcely colored in very pale blue, while the nucleus is of a strong carmin red.

After a few weeks, the hæmatics are much altered; they seem to have lost the greatest part of their hæmoglobin; they take very badly coloring matters and seem to be glued together to form an homogenous sheet, uniformly tinted in very pale orange color, in which the parasites, strong red colored and reduced to their nucleus, which is surrounded with a very thin layer of scarcely visible protoplasm, are disseminated in great numbers and may give the illusion of a culture.

We have made leeches suck the blood of sick dogs, blood very rich in parasites; the leeches, kept in the hot chamber at 22° in water changed every day, have allowed us to examine day by day the changes which occur in the blood collected in this manner; nothing of what we have described before could be observed; already, after fifteen hours, the parasites, still large, have taken a globular form; but they seem to have lost their amœboid motion; the red corpuscles are pale and have a tendency to agglutinate together; the following days, the parasites are seen diminishing in size gradually; after a week, they seem reduced to their nucleus and are disseminated in a kind of informal stroma, resulting from the agglutination and mixture of the red corpuscles; their number has not increased; these alterations remain identical until the death of the leech, which occurs from the fifteenth to the twentieth day.

Then, it seems well that the hæmatozoa cannot multiply but in a living and appropriated media.

CONSECUTIVE IMMUNITY AFTER RECOVERY.

All dogs recovered of the natural or experimental disease are hereafter refractory; they support with impunity the injection of virulent blood in doses far superior to those that are always fatal for the witnesses.

Dog No. 1, recovered of the experimental disease. After two and one-half months, when the red corpuscles have returned to 5,740,000 in number, he receives under the skin 20 c.c. of a blood of which 3 c.c. kill a dog witness in 7 days. Examination of the blood made every day, during 25 days has never shown hæmatozoa ; the thermic curve has had no elevation.

Dog No. 5, reinoculated three months after recovery with intravenous injection with 12 c.c. of virulent blood. Once only, the fifteenth day after, very rare parasites were found in the blood ; the dog has never shown signs of sickness ; temperature has remained normal.

Dog No. 8 (small size), reinoculated six months after recovery, with subcutaneous injection of 5 c.c. of blood very rich in parasites ; its temperature, on the eighth day, went up to 39°, but no hæmatozoa were ever found. The same dog has received since, several times, 72 c.c. of virulent blood, without having ever exhibited any parasite.

Dog No. 12, received two months and one-half after recovery 10 c.c. of virulent blood in a vein, and 5 c.c. under the skin ; its temperature remained normal ; very rare parasites were found in its blood the second, third and fifth day after the inoculation ; nothing after.

Dog No. 80, cured of a very acute attack of the disease ; received two months after 15 c.c. of blood very rich in parasites in the jugular, and 5 c.c. under the skin ; he never had fever nor parasites.

In all these cases the dog witnesses inoculated at the same time and of the same manner, with much lower doses of the same virus, died in 7–9 days or in 3–5, according to the mode of inoculation.

One can observe that immunity obtained by a first attack followed with recovery is altogether solid and lasting. After six months' recovery dog No. 8 is still refractory.

What is the mechanism of this immunity ?

We have already said that in the blood of the sick, specially of those that are going towards recovery, an active phagocytosis

was going on. It is common to observe large mononuclears having absorbed two, three, four and even up to six red corpuscles, all infected; among these corpuscles, some have already lost their hæmoglobin; others take color nearly as well as normal corpuscles; between these two extremes, one may find intermediate stages; the former have their parasites round, very small, scarcely colored and having an ill-defined outline; in the others, the parasites, also small and round, are strongly colored and their outlines are neatly marked.

This phagocytose goes on also in the depth of organs; it is observed very brisk on sections of spleen, even in dogs which have died with the acute form of the disease. In each field one may see mononuclears gorged with parasitic corpuscles partly digested; at times the phagocytosed corpuscles are so numerous that the phagocytes give the illusion of a capillary vessel cut across.

Infected hæmatics are always absorbed by the mononuclears: we have never seen a single corpuscle phagocyted by a polynuclear; it is, however, probable that polynuclears coöperate also to the work of absorbing the parasites free in the plasma; but we have not seen this in a positive manner.

(*To be continued.*)

In canine distemper, *Echafolta* in four minim doses administered in a drachm of water about every 2 hours in the acute stages has given the writer most excellent results.—(*E. L. Quitman, M. D. C., Chicago, Ill.*)

Jersey Justice.—Judge Garretson, in his recent charge to the Somerset (N. J.) Grand Jury, ruled that where death is caused by horses frightened by a recklessly driven automobile the offending chauffeur may be indicted for manslaughter. Joining this with Judge Dixon's earlier charge to the Bergen County (N. J.) Grand Jury on similar lines, we have two important judicial opinions agreeing in fixing an adequate penalty for death due to fast automobiling. What was heretofore an "accident," punishable with a fine which, to a man wealthy enough to own an automobile, was trifling, is thus made a crime to be punished with imprisonment.—(*W. H. L.*)

THE GREAT FIELD OF COMPARATIVE MEDICINE.

By Prof. James Law, F. R. C. V. S., Ithaca, N. Y.

A Presidential Address delivered before the 12th Annual Meeting of the New York State Veterinary Medical Society, Sept. 9th, 1902, at Brooklyn, N. Y.

It is not always best to plume ourselves upon our achievements and the exalted position to which we have attained. It is liable to beget personal and professional pride, which is proverbially near to personal disaster. Yet, if we are duly impressed with the fact that we know so little, even to-day, and with the immeasurably vast field that still lies open to us for discovery and advancement, it is not unbecoming, and it may be a wholesome tonic and source of encouragement to take a cursory glance over our field of work, and note some of the changes that have taken place within the memory of living man.

But no one can confine such a glance to one field of achievement alone. The eye is at once caught and held by the wonders of modern progress on every side, which have kept pace with each other in every field of human enterprise. The wonders of achievement of the past half century in every field of science, have immeasurably surpassed those of any antecedent period of the world's history of many times its duration. If an accomplished man of the early part of the 19th century could return to mortal life, furnished as he was at his exit, he would be made to feel at every step that the world was out of harmony with his habit of thought and experience. The triumphs of steam and electricity in bringing the most distant parts of the world to his door; the revelations of the telescope and spectroscope in demonstrating the existence and composition of the greater part of the now visible stellar universe, and in creating entirely new cosmic doctrines; the regular succession of geologic strata and their relics of living forms furnishing a historic library of the earth's past history, and a demonstration of the successive stages of its building; the demonstration of light and heat and electricity as forms of energy which

may be made mutually interchangeable, and through which all the energies of the universe appear to be continually maintained; the exhibition of the Röntgen light rays penetrating the most opaque organic matter, and showing the existence, position and form of the inorganic substance, imbedded in its deepest recesses; the responsiveness of given chemical compounds to light, through which we obtain the now commonplace but perfect photographic pictures of solid objects; the power of charging given bodies with light or electric energy, to be given off by slow degrees for useful ends; the still more wonderful power of certain products—radium polonium—of radiating light indefinitely without the preliminary charging of them from a previously radiant source; the transmission of electric messages, without solid conductor, through the ether for hundreds of miles, to be caught up and turned into words and thought by a receiver rightly attuned to their vibrations; the submarine ship; the dirigible flying machine; these are but a few of the more obvious advances that crowd in upon the average mind that is in no sense specialized in any one of these fields. To the scientist of 1800 these, and the thousand other less obtrusive, but not less real, of the 19th century triumphs, would come with a force that would be perfectly overwhelming.

When we turn to the advances in matters connected with medicine, the wealth of example is to us even more embarrassing. I can note but a very few of the salient points in which the present differs from the past.

When I took to the study of medicine the old days of venesection had not quite passed; every physician carried and used his lancet, and no veterinarian could get along without his fleam and blood stick. Every active inflammation, if met in its early stages, was held by many to be benefited by the free abstraction of blood. In Southern Europe, the practice was even more firmly rooted; under the then prevailing doctrines of Bronssais, bleeding was advocated *coup sur coup* time and again in the same attack, any increase of pulse, breathing and mouth temperature being a warrant for a new abstraction.

Bronssais himself is reputed to have bled the babe at the breast and the old man of seventy. A number of years later, the celebrated Italian statesman, Cavone, was held to be literally bled to a hopeless and fatal condition. By my time, however, the old and celebrated British physicians had become rather ashamed of their former excesses in this line, and the doctrine was already current that the type of disease had changed from a sthenic to an asthenic one, and that the former free depletions were not only not called for, but were in most cases absolutely injurious. Why the type should have changed in Great Britain and not in France and Italy was not fully explained. Some of the incorrigibles and disloyal ones had a rankling suspicion that the violence of the disease in former years was in no small degree due to the energy of the treatment applied. In any case, the bent spring rebounded, and it flew so violently to the other side, that the practitioner could hardly be made to confess that he knew of the existence, much less the use, of the instruments of venesection.

To-day we are somewhat less prejudiced on either side. We recognize that no agency is more prompt and telling in its action than a diminution in the solids of the blood ; for the water is soon supplied anew, and we have secured a transient abatement of suddenly induced plethora, a strong impression on the nervous system, and indirectly on circulation, nutrition, calorification, and the many recondite processes of cell production, and destruction of metabolism, of hemolysis, of leucocytosis, diapedisis, of phagocytosis, and of chimiotaxis, positive or negative.

If our theories are more complex, they are to-day based on a wider knowledge, and if we can no longer use the lancet as a panacea for all inflammatory, and many other diseases, we have intelligent views as to the small number of cases in which we can still draw on its use with striking advantage.

In the middle of the last century sedative treatment was the rule ; calomel and opium held a high place in the treatment of inflammatory affections, and the reliance upon it was so strong

that it was naturally pushed to excess, and cases of mercurial salivation were frequently in evidence. To-day we still esteem calomel as a valuable antiseptic of the alimentary tract, favoring at the same time elimination from the whole chylo-poietic system, to say nothing of its influence on metabolism and nutrition, but we are no longer in danger of using it as a routine treatment, or of pushing its use to the extent of producing mercurialism.

A still more potent sedative was found in tartar emetic, which in combination with febrifuge diuretics was used as a routine treatment in febrile and inflammatory cases, for both man and beast. Here again we had an agent of great potency, especially in the carnivora and omnivora, which acted not only on the nervous system and indirectly on the skin and mucous membranes, quieting, relaxing, stimulating perspiration, but with an influence on the great liver and digestive functions. No doubt it oftentimes assisted wonderfully in abating the high nervous tension and inviting that resumption of secretions which was attended by a favorable crisis or lyssis. But, the blind reliance upon it as a routine treatment is gone, and when we now prescribe it, it is only to secure some definite result of its physiological action, and that accomplished, it is dropped from the prescription.

We might canvas other agents in the same way, but time presses and I must let these stand as examples of a change at once radical and rational.

One great danger of to-day is that we should overlook the real worth of medicinal agents and methods that were the standards of the great men of the past, and in so doing put from us much of the legacy they have left us. In my view of the matter wisdom lies in a certain respect for their methods, which had after all a substantial basis, so that while entirely loyal to the advances of recent time, we should still stand ready to judicially pass on the medical lore of the past and make a right use of it in those cases in which it can be applied to advantage.

The ordinary diseases of bones in animals were formerly looked upon mainly as the result of mechanical injuries, and ringbones, splints, and spavins were explained on the grounds of blows, concussions, sprains, and the like. To-day we look deeper, recognizing the bearing of heredity; varying individual and family nutrition; the quality and tone that comes from appropriate diet and usage, and the lack of these with unsuitable food and disuse; the influence of the poison that is found in the magnesium limestone and of the impaired nutrition which comes in constitutional diseases. In short, to us an ostitis or periostitis is not simply a local inflammation to be subdued, but also, in many cases, a constitutional infirmity, which must be corrected if we would make a permanent cure.

But in the whole field of medicine no advance has been so fundamental and fruitful as the introduction of microbian pathology. As a link with the past, you have before you one who sat under the instruction of a man who even denied the existence of infection in epizoötic diseases. William Dick, the founder of the Edinburgh Veterinary College, was in some respects a great man, according to his light. But in some lines his light was but gross darkness. Following Sydenham, he attributed all epizoötic diseases to general causes, thermic, atmospheric, electrical, telluric, which assailed all animals alike, and to which those only succumbed which were at the time attuned to the morbid influence. For him rabies was the mere result of a general influence, and in his lectures he related how a rabid dog had licked a sore on his hand without producing the slightest evil result. For him, lung plague was the result of inclement weather, exposure, poorly ventilated buildings and the like, while rinderpest took its start from impaction of the third stomach, as a consequence of feeding on dry, fibrous, weathered and innutritious food. Dick stood long and loyally by his colors, logically applying his doctrines to all epizoötic diseases; he bore up bravely through the invasion of aphthous fever and lung plague, and it was only when the deadly rinderpest swept over the island that the old man, full of years and honors, had

the chagrin to see his whole doctrine fall to pieces under the dread logic of facts.

The doctrine in question found in Dick at that time its most faithful exponent under all circumstances, and as applied to all epizoötics, but others clung tenaciously to general causes in the case of a number of communicable affections. Henri Bouley, of Alfort, a grand man, physically and mentally, a man who never touched a subject but to render it attractive, may be adduced as a striking example. Glanders was at that time recognized in England as contagious in all its forms and stages, even the indomitable Dick excluding it from his list of epizoötic diseases due to general conditions. But in France contagion was accorded to acute glanders only, the chronic cases being held to be entirely free from infectious qualities. On both sides of the Channel the disease was attributed to general mismanagement, and poor hygiene, as was tuberculosis at the same date. I have heard the silver-tongued Bouley discourse learnedly, and to himself conclusively, on the development of glanders from the impurities of stable air, insufficient or injurious food, cold, damp, and, above all, from over work, the creatin, creatinine and other morbid products retained in excess within the system, laying the foundation of the deadly morbid processes. The results of the two doctrines were not a little remarkable.

In Great Britain it was rather rare to see a glandered horse, while in the Veterinary School at Alfort they were daily on exhibition. In the English army glanders was virtually unknown, and the occurrence of a single case was held to reflect seriously on the regimental veterinarian, while in the French army, 9 per cent. per annum became victims of this disease.

But even when contagion was recognized, the mystery continued, as to the actual agent by which the transmission took place. This ignorance was cloaked under such vague and speculative terms as "miasen," "humor," "virus," and later, "morbid functions in cells," and pathogenic "bioplasen."

It was only when Pasteur in his researches on alcoholic fermentations demonstrated the facts that such fermentations and

even putrefactions were the direct consequence of the multiplication in the liquids of particular living organisms or ferments, that the foundation had been laid for a true doctrine of contagion.

Lister, at that time assistant surgeon to the Edinburgh Surgical Hospital (and whose lectures I then availed myself of) conceived the idea that the fermentative and putrefactive changes in wounds, and notably the terrible hospital gangrene, must be due to similar ferments, and therefore preventable. He pursued his research for seven years, and in 1867 was enabled to report the demonstration of the truth of his convictions. It was years, however, before it made headway in other lands. Guerin, for example, taking the lead in Paris in 1871, but very soon the scourge of the hospital came to be held as a thing of the past, and patients went to the operating table with a hopefulness and confidence that had never before been known.

Prior to Lister's researches, compound fractures and gunshot wounds were most dangerous contingencies, and most operations involving the opening of the abdomen, the cranium or the chest were considered very redoubtable, whereas to-day they are undertaken light-heartedly and in a most hopeful spirit. And yet long before Lister's day the castration of females had been generally practiced in different countries, often by others than veterinarians (by gelders and shepherds) with almost invariable success, and the trephining of the cranium for cœnurus was a common and often a successful practice with veterinarians. The danger lay more in the concentration of the infection in great hospitals than in the dangerous nature of the lesion by itself. The virtual disappearance of hospital gangrene and other wound infections from army and city hospitals is one of the most splendid monuments that could be raised to the memory of a man. No matter if we have largely discarded Lister's antiseptic surgery, substituting wherever possible aseptic treatment, the same principle underlies both, and it is to Lister that we must attribute the planting of the germ that has borne such a splendid fruition.

As Lister first applied the great discovery of Pasteur to surgery, so Davaine may be said to have done for medicine, and it is an important fact that it was in the line of medicine of animals. Pollender in 1849 had found multitudes of very fine rods in the blood of anthrax-stricken cattle. Davaine confirmed this a year later, and Brauel seven years later still. But it was only in 1863 and as a result of the Pasteur discovery that it suddenly occurred to Davaine that this was the true cause of the disease. But anthrax was still a very indefinite quantity. By a reference to the literature of the time, it will be seen that it included black quarter, malignant œdema, hog cholera, swine plague, swine erysipelas, the various hæmorrhagic septicæmias, and even Texas fever. It was only slowly and by patient work in the field and laboratory that these various independent affections were differentiated and each assigned its place according to its true microbian cause and pathology. The final demonstration has come in every case through the discovery of the microbe, and gradually veterinary pathology has been enriched by the addition of a long list of animal diseases, all having much in common and all due to different microbian causes. The laboratory study of these affections has not only given us the demonstrations of this large class of maladies, but it has contributed largely to the identifying of many deadly forms of poisoning, by toxins, ptomaines, and enzymes, and again by mineral agents like powdered soaps added to swill, and which have often proved as deadly to the herds poisoned in this way as the most destructive forms of hæmorrhagic septicæmias or genuine swine fevers. The localization of such outbreaks, their confinement strictly to certain filthy enclosures, to herds fed in a particular way, and the absence of the specific germ of the disease which is suspected to exist, will usually furnish the crucial test, and differentiate for scientific and for practical sanitary purposes, affections, which in time past would have been classed together as one common malady. So far as these maladies are concerned we can to-day place veterinary sanitary science on a sound basis, always provided that its administrators

are selected for their knowledge of modern animal pathology, and are not mere office-holders appointed in recognition of personal claims of other kinds.

Closely connected with these affections, are rinderpest, sheep pox and lung plague, which, since the extinction of the latter in this republic, we have come to think of as plagues of the Old World, which can never more directly interest the favored stock-owners of America. But our acquisition of the Philippines has brought us into direct contact with Asia, the ancestral home of animal plagues, and the war in those islands has apparently been the immediate cause of the wide and deadly extension of the plague of the Steppes into the herds of the Philippines. Fortunately for our home herds, our vigilant Bureau of Animal Industry was quick to see and meet the danger, in securing an order of exclusion of all cattle and pigs coming from the Philippines, from the United States and any of its dependencies.

But as veterinarians of the imperial country, we can no longer afford to ignore the rinderpest of the Old World. It is now domiciled on land which in the progress of events has come to be a part of our nation, and we are called upon in right and justice to assist the islanders in ridding themselves of a scourge, of which our interference was in a large measure the occasion. Manila must look to America for the means of extinction of this plague which now threatens the ruin of her cattle industry, and the American veterinarian must stand ready to take up the work intelligently and to carry it through to a successful issue. No cattle plague is more redoubtable and deadly, and yet, for those who may be charged with its extinction, the prospect is much more hopeful than when we are dealing with a pestilence which is slower in its progress, more liable to prove occult in its course, and in dealing with which every step is liable to be clogged and even blocked by a badly informed and often prejudiced legislative body. In a dependency like the Philippines, under an intelligent centralized authority, there is a better prospect of the adoption of effective

measures of extinction, and of carrying these through without wavering or hesitation to a splendid success. If this can be accomplished, and if the object lesson can be taken in the right spirit by the United States, encouraging them to grapple effectively with their own indigenous plagues, the blood and treasure expended on these distant islands may be repaid many times over in the future prosperity of our animal industry.

Let us now glance for a moment at tetanus. Until comparatively recently no one scarcely suspected that tetanus was an infectious disease. It was believed to be the result of local irritation and nervous excitement, and there is yet a widespread idea that any violent pain is likely to bring on the affection. This received countenance from the frequency with which it followed deep wounds of the palms and soles in man, the feet, tail and testicles in the horse, from lesions of unyielding fibrous tissues, and from gunshot and bayonet injuries. The fact was overlooked that the affection often started during or after cicatrization, when the real irritation had in a great measure passed. Since the discovery of the bacillus of Nicolaier, we know that this anærobic germ flourishes in deep, closed wounds only, under the skin, fascia or tendon, therefore in stab and bullet traumas par excellence, in which there is abundant exudate outside all circulation of blood or oxygen, and that it will not invade the circulating blood in which oxygen is relatively abundant. We are no longer in the dark, left to meet it blindly by antispasmodics alone, but we know how to prevent it by asepsis and antisepsis of wounds, by exposing deep dirty wounds to the action of the air, by dressing with antiseptics the navel of the new born, and by ridding the subject of intestinal worms which make infection easy for the bacillus.

Formerly a large number of young animals died of purulent arthritis and diarrhœal diseases very shortly after birth, the affections being attributed to weakness of constitution and faulty feeding. To-day we place the finger on the source of trouble in the infective omphalitis from which the septic microbes find their way in the blood to produce inflammatory changes, ne-

crosing degenerations and secondary abscesses, in the liver, lungs, joints and alimentary canal.

Our herds of horses and cattle alike and our flocks suffered largely from abortions, which were attributed to constitutional infirmities, faulty feeding, mechanical injuries, and emotional disorders. Now we know that different infectious microbes living in the genital passages are largely the cause of the trouble and that the malady is just as amenable to treatment and prevention by sanitary precautionary measures as are any of the diseases that have been long recognized as due to contagion.

Many of us can recall when actinomycosis was known as cancer, clyers, spina ventosa, or osteo-sarcoma: terms that served to cloak our ignorance of its real cause and pathology. To-day we know that it is simply a culture in the living tissues of the beautiful ray fungus of actinomycosis; we can trace its secondary causes in the sowing of its seed in wounds and natural openings and recesses, and cannot only ward off its approaches, but in all moderate cases we can subject it to effective treatment, medical and it may be surgical as well.

Dourine has been known in Europe since 1796 and in 1882 was introduced into Illinois in the body of a French horse. Until very recently, however, it was very much misunderstood. Bouley, Trasbot and others accepted the fiction that it is syphilis communicated from man to horse, and propagated thereafter as an equine disease. Others considered it as glanders affecting the genital and nervous systems. To-day we recognize its cause in the *trypanosoma equiperdum*, an infusorial parasite which lives in the blood and genital passages, and can be successfully transferred to the dog.

Surra, or rot, of the hot rainy season in Hindustan and neighboring countries, like rinderpest, now threatens us through our Philippine dependencies.

This affection of solipeds, camels and elephants, was supposed to be a form of remittent or bilious fever allied to that of man, but is now traced to another trypanosoma (*T. Evansi*), differing from that of dourine among other things in that it is

transferred from animal to animal by blood-sucking flies and other insects.

The nagana of East Africa, due to another trypanosoma (*T. Brucei*), and which is not infectious to elephants, was only known late in the last century and was long attributed to a special poison instilled into the wound by the tsetse fly (*Glossina Morsitans*), which is now known to convey the trypanosoma.

Here we have a new class of infectious diseases introduced into our veterinary literature, one of which (dourine) has already gained a foothold in the United States, and a second (surra) threatens us through our Eastern dependency. It may be but the turning of a new leaf, as other animals suffer habitually in certain countries from trypanosoma; a parasite of this kind (*T. Lewisi*) is common in rats in Asia and Europe; another invades the systems of the dog in South Africa and Europe, and certain inscrutable diseases of South America and elsewhere are quite suggestive of this class of parasite.

In 1888 Starcovici found pyriform organisms in the blood globules of Roumanian cattle the victims of hæmoglobinuria the following year; what appeared to be the same parasite was found by Th. Smith in the blood globules of cattle suffering from the corresponding disease in America—Texas fever. Later it was found in Australian victims, and still later in the tristeza of South America. Thus was another of the most deadly infections of animals traced to its true source. But the advance of knowledge did not end here; shrewd observers, as early as 1868, had noticed that Texas fever never occurred in the absence of the cattle tick, and in 1889 our colleague, Dr. F. L. Kilborn, was so impressed with this fact that he secured permission to put it to the test under the auspices of the Bureau of Animal Industry. His expectations were confirmed in every particular and his results were soon endorsed by observations in all parts of the world in which this disease was known to prevail. To-day the bearing of the piroplasma by the tick is perhaps the most important fact in connection with the disease; it is the pivot upon which prevention revolves, and it bids fair to be the

foundation on which the final extinction of the malady will be based.

The doctrine of tick causation has born fruit in other directions. The louping ill of sheep in Northern Europe has been traced to the ticks in the pastures, and what was long a mystery to flock master and veterinarian alike has been now cleared up and a substantial basis for prevention furnished. The agency of flies and other insects in the transmission of chicken cholera, typhoid fever, anthrax and other diseases in summer has been demonstrated, and certainly has taken the place of speculation in matters essential to sanitary policy.

In the same way at every step we have learned by the agency of birds wild and tame in the transmission of infection, sometimes as being themselves the victims of the pathogenic germs, sometimes when they become mere bearers from feeding in the same troughs with the sick animals, and other times still because they are devourers of carrion, and feed upon the carcasses of the victims of a pestilence. In their turn the vermin which approach and feed in our stables, stock-yards and parks have to be taken into account as infection-bearers. Thus the field of the veterinarian has been continually widening. An acquaintance with the infinitesimally small organisms in both the animal and vegetable kingdoms, and as far as possible with their life history, became a *sine qua non* of modern practice.

In this microbian pathology is involved the whole subject of immunization and serum therapy. Into this fascinating subject I cannot enter here, further than to say that immunization is mainly based on our power of investing the leucocytes and tissue nuclei with the habit of producing defensive products, which are inimical to the invading microbes, or chemically neutralize their toxins, while serum therapy utilizes the same antitoxins ready formed and which introduced into the system in full doses will operate at once, without waiting for the work of the leucocytes in forming these defensive serums. In their action the two differ essentially in this respect, that when the leucocytes have, by contact with a non-fatal dose or doses of the

toxic matters of the microbes, been habituated to the production of the requisite amount of antitoxins, the habit remains, and for a length of time the animal is immune from the effect of any ordinary dose of the microbe. When on the other hand the antitoxins alone are introduced into the system, the microbes, and their toxins are neutralized, and the animal protected from the commencing or pending attack, but the leucocytes are not stimulated to produce their own antitoxins, and the moment the defensive injection has been used up, any toxins that may be present can resume their sway.

The adaptability of these systems varies greatly in the case of different microbes and subjects. In one disease the new direction given to work of the leucocytes has an effect as lasting as life: in another, a second attack may follow in a very short time. The first is a fit subject of immunization: the second is not. Again, in one disease the microbe can be robbed of its vitality or virulence by different agencies, which do not destroy the toxins: in another the toxins are more readily destroyed than the microbe, so that the training of the leucocytes to the defensive habit becomes impossible by the same method. The principle is largely the same for all, but the *modus operandi* must vary with the disease and its product. There is no royal road to immunization nor to serum therapy, but working from the same fundamental principles the technic must be worked out independently for each malady. Yet taken as a whole it is a division of the new medicine, and one of the most fruitful branches of the microbian pathology.

But we must not confine our attention to the infinitesimal, under the delusion that here only our new pathology bears sway. We must become familiar with the animal kingdom, in order to achieve an intelligent management and control of infections that are transmitted through the instrumentality of the feral fauna.

Again, the importance of the animal kingdom has always been recognized in connection with parasitism, but in the past half century the comparatively few parasites, previously esteemed important in their pathogenesis, have been multiplied

an hundred fold, and here again a practically new field has been opened up for veterinary study. Some of these parasites are among the most redoubtable and destructive known. Need I name, for I must do no more, the actinomyces, coccidia, strongyles of the lungs and bowels in different animals, the tæniæ, the botherio cephali, the sclerostomata, filariæ, and other blood parasites, the œsophagastomata, the trichinæ, the lungualulæ, the aspergilli, and the acarini, of internal organs in all their species and habitats. But I must not delay on the almost endless list of parasites, even to enumerate their genera.

One disease, however, has been so far omitted that it would be almost criminal to leave out of our list. When in 1865 Villemin published the results of his experiments in the production of tuberculosis by inoculation with the virulent matter of the tubercle it was met by an all but universal opposition. A vulgar opinion in certain localities, and a silent conviction of certain veterinarians, based upon their observations in herds, almost alone coincided with the brilliant French investigator. But this came in an age when authority could no longer crush facts, and slowly but surely the facts triumphed, and a foundation was laid for what must still, after 37 years, be referred to as the *future extinction* of the most insidious and deadly plague of man and animal. Seventeen years passed ere Koch crowned the work of Villemin by the discovery of the bacillus tuberculosis, for which the world was now in a measure prepared, and now, after twenty years more, we are still debating the unity or plurality of the tubercle bacillus. Truth travels slowly, but under our modern *a posteriori* or scientific method, its final triumph cannot be doubted. Already we have learned some of the variations of the dread bacillus, its lines of easy diffusion, and those that prove difficult and uncertain. And already we see that varieties of this bacillus which have in accordance with their environment assumed habits the most diverse, can be restored to one common character even as regards pathogenesis. The stumbling blocks are being gradually removed, and we are daily approaching nearer to the time when for both man and

beast tuberculosis shall be shorn of its greatest dangers, and the tribute of one-eighth of humanity and a large proportion of our live stock to the insatiable bacillus shall be reckoned a thing of the past.

Gentlemen, I have held your attention too long. I have sought to establish the position that we meet under different auspices than confronted our predecessors. Times have changed, veterinary medicine has changed, and no less our duties have changed. I have hardly touched more than one phase of the mighty transformations of the medicine of the past half century—the new microbian pathology. I would like to add that this pathology and this change are by no means limited to the field of animal plagues, but must be dealt with in the different phases and stages of the majority of what are still to be considered as sporadic diseases. And if we could enter into the allied field of medicine, we would everywhere meet with changes, advances, and demonstrations only less than we find in pathogenic microbiology.

The change in conditions demand a change in our attitude and effort; as a profession we can only hope to retain the confidence and support of the public, by showing that we are in full relation and sympathy with the medicine of modern times.

In the past the veterinary profession of New York have had the humiliation of seeing medical men and laymen appointed to do work which rightly belonged to the veterinarian, on the alleged ground that, the latter is deficient in the education and skill necessary to fulfil the duties of the place. The profession and the public have alike suffered, and they will continue to suffer more or less, until we can confute our detractors by pointing to a body of men who are amply trained for this work, and whose fitness is guaranteed by the legal demand of a high standard for entering and practicing the profession. We have to a large extent secured such a standard, one that aims higher than that of any other State in the union. The main drawback is the illegal entry or practice in the State of those who are not up to the standard required, and who seek to secure the esteem,

the confidence and all the rights and immunities of those who have entered on practice through the legal doorway. These men are violating the law, they are doing violence to every sense of honor, and they are doing their best to degrade the veterinary profession, for by unchallenged practice in the State they are setting a standard in the mind of the stock owner by which the whole veterinary profession is of a necessity graded.

By the State law this society is set as a guardian over this matter. The society must nominate the men who shall preside over the examinations for *license to practice* in New York, and on this society is imposed the duty of authorizing the prosecution of any one who may practice without this license.

This duty presses on every veterinarian in the State. If he declines to assume it, he is unfaithful to his profession, he is contributing his influence toward excluding the profession from its rightful field of work and toward the denial of the State and its great live-stock industry of the valuable service which under the statute they have a right to expect. The modern advances in veterinary medicine demand of us new duties, and by the terms of the statute the responsibilities are laid upon our shoulders. The question comes to every member of this society, and to every legal veterinary practitioner in the State, can you be trusted to meet the responsibility laid upon you? Will you prove yourselves worthy of the highly honorable duties imposed upon you by the law of the commonwealth?

It is to be hoped that before it separates, this society will take decided steps toward the maintainance of the law in its integrity. It is to be further hoped that every member of the society and every legal practitioner in the State, will frown upon, and give his active opposition to any attempt that may be made to make any man a legal practitioner by special enactment and in defiance of the existing law and of the regents' board of veterinary examiners.

It need only be added that for the meeting now in session the programme presents a varied list of practical papers and surgical demonstrations, which should call forth the freest dis-

cussion. While we are all grateful to the gentlemen whose names are on the programme, their praiseworthy efforts will be largely lost if they fail to draw out the combined wisdom and experience of the hearers as well.

In France $3,474,000 is spent every year in the improvement of horse breeding.

Although the ancients protected the feet of their horses with some covering—usually straw—horseshoes of the kind now known were not in general use until the ninth century.

The Fall Driving Season.—Never has there been such an array of harness horses of value, ability, fine conformation and general desirability as is in New York to-day. Even Cleveland, that famed centre of amateur driving, where it is the exception not to possess a trotting horse almost the equal of the best developed racers, cannot produce more animals of reputation than our local "light harness brigade." What matters it to the driver, whether the wind blows strong or the air be keen with the first touch of the autumn frost, if he holds in his hand the reins that bring him in touch with a sensitive, intelligent and well bred animal, speeding briskly against the gale, and bringing a glow of health to his owner's cheeks, and a feeling of enjoyment worth half the profits of a day's grind at office desk. Ten years ago the harness horse was a comparative stranger to the streets of New York. The comparison is made on the basis of the horse ownership of to-day. The Speedway was unfinished and there was no place where a busy man might seize the opportunity for a little relaxation by driving at a brisk gait. A few clung to their roadsters, but many, who were passionately fond of driving, abandoned the sport because of the restrictions placed about it. The business of local dealers suffered. The business of the breeder suffered, and through them hundreds of minor employés, for whom there was no occupation, suffered. Now all is changed. There is greater and more substantial prosperity for the horseman than ever there has been, and the benefits are far-reaching. Saturday afternoon there was a formal opening of the fall driving season in the Speedway. Horsemen were there from every part of the city. Contests took place between animals that are well known and that have records for doing better than the humbler of their contemporaries. A dinner followed, and the hand of good fellowship was extended in all directions.—(*New York Telegram, Oct. 20.*)

NOTES ON A FEEDING EXPERIMENT TO PRODUCE LEUCOENCEPHALITIS IN A HORSE, WITH POSITIVE RESULTS.

By Tait Butler, State Veterinarian, Raleigh, N. C.

Throughout veterinary literature, under various names, are to be found numerous references to a disease generally known in this country as "cerebro-spinal meningitis." More recently, Pearson has described outbreaks in Pennsylvania and Delaware, reported positive results from a feeding experiment and suggested what he considers a more appropriate name, "forage poisoning."

The writer thinks he has seen this disease in both Iowa and Mississippi, and from his observations and what he has been able to learn from the literature at his command has noted the constant absence of marked macroscopic post-mortem lesions in the brain and its enveloping membranes. In fact, the absence of post-mortem lesions sufficient to account for the pronounced clinical phenomena and early death seems to be the most constant and characteristic feature of the disease.

Early in 1901, while at the Kansas Agricultural College, I also saw a number of cases of that disease which Mayo described, in 1891, as, "epizoötic cerebritis," and which Buckley, of Maryland, has more recently described as "acute expizoötic leucoencephalitis." Moreover, during the latter part of 1901 those counties of North Carolina bordering on Albemarle and Pamlico Sounds were visited by a severe outbreak of this same disease, from which not less than 600 horses died. During the latter part of this outbreak, in the month of December, 1901, I had an opportunity to study the clinical history and post-mortem lesions of a large number of cases.

The disease described by Mayo and Buckley, and which I have seen in Kansas and North Carolina, differs very materially from the "cerebro-spinal meningitis" of veterinary literature and the "forage poisoning" of Pearson, in that the macroscopic

post-mortem brain lesions are constant, extensive and extremely characteristic and confined to the white matter of the cerebrum. This constant essential difference in post-mortem lesions and the less pronounced but important differences in clinical phenomena, lead me to suspect that we have, at least, two quite distinct diseases, due to different (although probably related) causative agents.

In a feeding experiment to produce a disease having no characteristic post-mortem lesions, the identity of the natural and the experimentally produced diseases must be determined chiefly by the clinical observations, but in a case where the evidence of identical extensive and characteristic macroscopic post-mortem lesions are added there can be no reasonable doubt as to the positive nature of the results.

These introductory observations are thought necessary to prevent any misunderstanding as to the identity of the disease under consideration.

During the early spring of 1901, a Mr. Avery, living near Wakefield, Kansas, lost, within ten days, four pure-bred Percheron horses from acute leucoencephalitis. All exhibited similar symptoms, and post-mortem examinations revealed the characteristic breaking down of more or less extensive areas in the white substance of one or both cerebral hemispheres. The sanitary condition of the stable and adjacent lots was good. The water supply came from a hillside far above the stable and was beyond criticism. The rough forage, while not of the best quality, was clean and sweet. The grain feed for three or four weeks immediately preceding the outbreak of the disease consisted of corn meal. The corn from which this meal was made, when examined in the crib, was found to be in very bad condition, probably ten or fifteen per cent. being rotten, mouldy and worm-eaten.

On our advice the feeding of this corn was discontinued, and although the other conditions remained the same, no further loss occurred. A quantity of the worst of this corn was picked out and shipped in sacks a distance of about forty miles to the

Agricultural College at Manhattan. A small quantity of the chaff blown out by the sheller, in which was a considerable amount of light and diseased corn, was also secured. It was all kept in a dry place until July 25th, 1901, when the corn in the ear was ground, cob and all, preparatory to feeding.

On July 16th two healthy colts were purchased for the feeding experiment. They were of the light harness class and about twenty-three months old. They were confined in a dry lot higher than the surrounding country, furnished with shelter that protected them from the sun and rain and supplied with hydrant water from the town waterworks.

From July 16th to July 25th, inclusive, they were each fed 1½ kilos of ear corn, or corn and cob meal, twice daily.

From July 26th to August 19th inclusive, they were each fed 1¾ kilos of the suspected corn and cob meal, twice a day, and from August 3d to the 13th they received in addition, one feed a day—mixed with the corn and cob meal—of the chaff from the sheller previously referred to, in all amounting to about 30 kilos. The supply of suspected corn and cob meal having been consumed these colts were fed on August 20th and the morning of August 21st (three meals) a quantity of good marketable shelled corn.

One of the colts sickened and died at 11.40 A. M. August 21st. During the first ten days of the experiment each colt received daily about 5 kilos of alfalfa hay of the previous year's crop and for the balance of the time each had daily about 6 kilos of new bottom land prairie hay.

The writer left Kansas August 15th and the following observations were made by Mr. A. T. Kinsley, M. S., Assistant in the Veterinary Department of the Kansas Agricultural College: "The colt that died August 21st at 11.40 A. M. was apparently in his usual health at 7.15 A. M. At 8.15 A. M. having become entangled in the wire fence he was assisted to his feet, but staggered away to the right until he came in contact with the fence again. At 11.40 he died and the post-mortem was made at 1 P. M. The internal organs were carefully examined, but

no lesions found except a few 'grayish white blotches on the liver.' The left cerebral hemisphere was soft to the touch, and when cut through, the white matter was broken down extensively, nearly the entire hemisphere being involved. On section, the right cerebral hemisphere only showed a small broken down area." The time which elapsed from the beginning of the feeding of this suspected corn to the death of the animal, between three and four weeks, corresponds very closely with my observations in the natural outbreaks of the disease.

THE most curious cemetery is situated at Luxor, on the Nile. Here repose the mummified bodies of millions of sacred cats. Their remains are side by side with the bodies of kings and emperors in mausoleums.

FOR SUN-STROKE, INSOLATION OR THERMIC FEVER.—In addition to the usual external application of ice and cold water administer internally the following: ℞ Acetanilidi, ℥ iss; spts. ammon. arom., ℥ viij. M. Sig. One ounce in a pint of water every 2, 3 and finally every 4 hours, according to height of temperature. In cases of complete exhaustion one drachm of acetanilidi to each ounce of aromatic spts. of ammonia administered every hour for 3 or 4 doses is preferable; a double dose may be given for the first dose if temperature is 110 degrees or higher.—(*E. L. Quitman, M. D. C., Chicago, Ill.*)

A NEW TÆNIAFUGE.—The *Arte Medica* for August 24, cites the following from the *Giornale di farmacia, di chimica e di scienze affini*, 1902, as a "certain and innocuous tæniafuge for [human] adults": ℞ Black copper oxide, 6 grammes (90 grains); calcium carbonate, 2 grammes (30 grains); levigated white bole, 12 grammes (180 grains); glycerin, q. s. M. ft. pil cxx. Two pills to be taken four times daily, avoiding acid foods. On the last day a dose of castor oil should be taken.

THE "amphitheater clinic" at which the instructor operates and only tolerates the student to "look on" has been supplanted at the Chicago Veterinary College by a surgical clinic at which the senior students are the operators and the junior students are the assistants. Twelve hundred operations on living subjects under the influence of chloretone were performed during the session of 1901–1902.—(*L. A. Merillat, M. D. V., V. S., in C. V. C. Quarterly Bulletin.*)

THE PATHOGENESIS OF EQUINE PNEUMONIC EMPHYSEMA.

By Prof. A. H. Baker, V. S., Chicago, Ill.

A Paper read before the 39th Annual Meeting of the American Veterinary Medica Association, Sept. 2-4, 1902.

Considering the fact that this disease materially injures the victim of it, reducing his market value and usefulness, in some cases almost to uselessness, and considering that it is very prevalent in the Eastern, and increasing in the Western part of this country, it becomes one of the most important subjects for our consideration, and our duty to exert our influence on the farmers, to induce them to harvest their fodder at such a time as to reduce the indigestibility of it, and on those having the care of horses to observe better hygiene in the feeding and watering of them to prevent this distressing, and, in all chronic cases, incurable affection of horses.

Pneumonic emphysema is a reflex neurosis due to faulty dietetics in 99 per cent. of the cases, the remaining one per cent. being due to previously existing pulmonary affection, viz.: bronchitis. The origin of this reflex neurosis is in the gastric ramifications of the pneumogastric or vagus nerve. This neurosis, arising in the stomach, produces morbid anatomy in the lungs primarily and only; the cardiac complication arises secondarily and consequentially. The gastric manifestations are entirely functional, those of indigestion, among which I may mention thinness of flesh, pot belly, long rough coat, profuse evacuation of gas per ano and the liability to flatulent colic, owing to the distention of the stomach and reduction in quantity of the gastric juice. The bowels also become greatly distended and digestion is so tardy and weak that fermentation of the food is excessive, giving rise to the increased flatus. The disease is induced by a gluttonous appetite; a poor feeder never has it. The horse with heaves is inclined to eat everything in sight. It is produced by long continued overeating on overripe hay. The two kinds of hay that I have had experience

with, as causing emphysema, are timothy and red clover. These grasses when left to get too nearly ripe before being cut for hay become very ligneous in their stalks, so much so that the lower half of each stalk is wholly unfit for food for horses. This over-ripe hay fed liberally to horses for weeks or months produces a long continued overdistention of the stomach of the gluttonous feeder; this produces a neurosis of the gastric portion of the vagus, at first hyperæsthesia, followed by enervation, which creeps forward and involves the pulmonary branch, the source of pulmonary inervation, in a neurosthenis that weakens the contractility of the lung substance and lessens its power to expel the tidal air. The disturbance is purely functional at first, manifested by rapid breathing, frequent cough, dilatation of the nostrils and more or less lassitude. If the cause is not removed in the course of three to six months the contractility of the parenchyma of the lungs becomes impaired, resulting in dilatation of the vesicles, rupture of many into one, atrophy and pallor of their walls. This pallor is due to anæmia of the distended vesicles, reducing the calibre of the outlet for the blood from the right side of the heart by obliteration, to a greater or less extent, of the capillaries of the pulmonary tissue, leading to the dilatation of the right auricle and ventricle. These disturbances are purely functional for two to six months; during this time the disease may be said to be incipient, and is curable under rigid hygienic rules, but if the cause is not removed, the morbid anatomy soon becomes chronic and incurable, and gives rise to the double expiratory motion of the organs of expiration. The first half of the expiratory act is performed naturally and with ease, but the contractility of the lungs is so seriously impaired that the abdominal muscles are brought into strong contraction to expel the balance of the tidal air. When this is accomplished they relax quickly and drop back spontaneously into their natural positions; then the inspiration takes place normally. This disease is subject to frequent exacerbation of symptoms by overeating and drinking or active work soon after meal, especially if facing the wind.

It may be safely said, that pneumonic emphysema never occurs in horses at pasture, nor on prairie hay, nor in horses getting liberal quantities of oats and correspondingly small quantities of hay, nor on timothy and clover that were cut at the proper time.

After thus considering the connection between cause and effect, the question of prophylaxis naturally arises. The question, when is the proper time to cut timothy and clover, suggests itself. In my opinion, it is when the seed is in the milk. In order to catch them in this stage of development they must be cut a day or two after they are in full bloom. Those grasses mature very rapidly, and once they have passed the full bloom period the stalks become woody very quickly, so much so, that if left a week longer, the lower half of the stalk is not only unfit for food, but actually injurious to the horse that eats it.

As a further protection against emphysema and to maintain the stomach in a healthy condition, horses should be fed sufficient grain to make it unnecessary to give them more than a moderate amount of hay, and gluttonous feeders should be muzzled after they have consumed their rations to prevent them from engorging themselves on their bedding.

The European authors do not recognize the influence of dietetics in the etiology of this disease. The English hint at it, but fail to give it any importance. Professor Law, in Volume I. of his admirable work on "Veterinary Medicine," on page 274, says, under causes: "This disease is essentially the result of faulty feeding and working, though preëxisting diseases of the air passages and sudden, violent muscular efforts no doubt occasionally contribute to its development." On page 278 he says: "The question arises how a disturbing cause operating directly upon the digestive organs should affect the respiratory in such a marked and permanent manner. It cannot be because of the gastric and abdominal distention, since pregnant mares, though in a state of much greater plentitude, are not thereby rendered liable to broken wind; and if they have previously suffered from this infirmity, the symptoms are less

marked when breeding." Then he refers to a theory advanced by Dupuy, that certain disturbances of the stomach and intestines so impair the function of the vagus nerve that the lungs are affected, at first functionally and afterwards structurally, but no theory is advanced as to the cause of this disturbance resulting in emphysema. The point I wish to emphasize is that long continued distention of the stomach, not by any particular kind of food, but by food of a particular quality, is the cause of emphysema, and this particular quality is found in the rank growth of the grasses above mentioned on the rich soil of our Western prairies, in which case it is specially necessary that it should be cut before the stalks become woody.

ESERINE IN COLICS.—To those of the profession who use eserine sulphate (and every one should use it) we advise that you purchase it in one and one-half (1½) grain *tubes*, this being the usual dose, and thus it is always fresh and active. If you have become dissatisfied with the action of this drug in the tablet form or in the larger containers, we suggest you try it *again* in the 1½ grain tubes.—(*E. L. Quitman, M. D. C., Chicago, Ill.*)

NEW ZEALAND authorities are determined at all costs to put a stop to the importation of disease germs into that country. Recently a law was passed providing that bones either in the piece or ground up for manure must be disinfected and thoroughly sterilized at the port of embarcation. Dr. Gilruth chief veterinary official for New Zealand states that anthrax has been imported in ground bones, an outbreak of that malady in New Zealand having been traced back to a shipment of this sort.

THE CAT'S TENACIOUS HOLD ON LIFE.—*Chicago, Ill., Oct. 18.*—Strange noises, coming apparently from a supposed solid brick foundation in the northeast corner of the new Post Office Building, puzzled workers upon the structure for the last six weeks. The mystery was solved by the removal of a portion of the foundation and the discovery of a black and white cat in a space barely large enough to permit of the entrance of its body. As a layer of rock was removed the cat leaped out, and three workmen who stood near fell back in surprise. The cat had been lying in the little space for six weeks. No one knows upon what it subsisted, as the workmen were unable to find any food in the small enclosure.—(*New York Herald.*)

EQUINE TROPICAL DISEASES—PARTICULARLY ULCERATIVE LYMPHANGITIS.

By Coleman Nockolds, M. D., V. S., Vet. 5th Cavalry, U. S. Army, Batangas, P. I.

All the diseases which we have seen in the Philippines during a period extending over two years are more or less common to tropical countries of the Eastern hemisphere and most probably exist in the Western tropics. There are not any but what have been described more or less accurately by veterinary surgeons and others from time to time since Europeans first set foot in the tropics. The different veterinary periodicals and works, especially by Europeans, contain all that is known of these diseases up to the present time, and from a diagnostic point there is no reason why a veterinarian visiting these countries and seeing these diseases should be led to error. The characteristics of the living and the dead have been repeated again and again in almost every language, but there is much to investigate as regards the successful prevention and treatment of these maladies. Of course, years ago writers and investigators were unable to study causes because of not having the appliances, but nowadays there ought not to be any great difficulty with the means which we have at hand. I believe that no great mistake is made by me when I state that all diseases of an infectious nature are caused by an animal or vegetable parasite, which attacks their host in one way or another. Although not at present thoroughly acquainted with the history of many of these, it is to be hoped that in the near future investigations will bring to light at least enough of their modes of action and habitat to successfully combat many of these troubles with which the veterinarian is utterly unsuccessful at the present time. We are not alone in this, as our medical *confrères* have essentially the same condition before them as we have. Not only is this true of tropical diseases, but of those occurring in temperate climates, but perhaps hardly in such large proportion.

Among the diseases which seem to be peculiar to tropical climates, the following are common out here:—

Surra.

Myotic dermatitis (adobe itch).

Barsatti—bursatte.

Kumree—Kamri.

Ulcerative lymphangitis.

Tropical ulcers.

Chiber.

Besides which the following exist, which can hardly be classed as tropical, although occurring more frequently in tropical countries under suitable conditions:

Tetanus epidemic.

Pan-opthalmitis infectious—periodic opthalmia.

Quittor.

Canker.

Thrush.

Parasitic diseases.

Colics and Pneumonias are of rare occurrence, as are most of the common home ailments. During the dry, dusty season there is often a mild coryza, which runs through the troops.

Founder is frequent with horses on the march, most often through losing a shoe and marching barefooted over rocky ground, river beds, mountains, etc.

Thrush and Quittor and occasionally *Canker* are always of a persistent and malignant nature, and usually occur during the rainy season, and are the result of irritation from parasites in the mud or water.

Tetanus is serious, and fourteen horses have died from that disease during these last three months from three troops, and several have been attacked by a mild form and have recovered. I could not notice that antitetanic serum was of any benefit, although freely used.

Glanders is not particularly common, and I believe it never existed here until brought out by Americans. I have never seen a case among the native animals, although two years ago there

was quite a lot of talk about native ponies dying from it. I think that surra and not glanders was the disease. Two troops of my regiment have been decimated by glanders; they caught it from American horses, quartermaster stock, which at the beginning of the Philippine trouble was shipped out here promiscuously without any thorough examination before leaving American ports.

"A" Troop lost and destroyed 13 glandered, and "C" Troop, 30. These troops were quartering near each other in Tayabas Province. It is probable that it was stamped out, as thorough precautions were taken and no fresh cases have occurred.

Infectious Pan-Opthalmitis.—Of all horses that are condemned as being of no further service for cavalry purposes this disease claims the most. One reason perhaps is that all, with few exceptions, of native ponies suffer from it. It is the real old-fashioned "moonblindness," with periodic inflammation, and final involvement of the whole eyeball, with complete loss of vision. It may be more or less hereditary among the native ponies, but many troop horses that came out here after they were ten with good eyes have lost their eyes through this trouble.

Parasites.—It is more than probable that animals in these islands suffer from every variety of ecto and endo parasites in existence. Every autopsy shows a variety, both macro and micro-scopically; worm in the eye is of frequent occurrence.

Anthrax.—One case has been reported up in the northern part of the island of Luzon, but it is to be hoped that it was a case of mistaken diagnosis (such cases have occurred, even out here), although the climate and soil would seem to be in typical condition for the anthrax germ.

Rinderpest among cattle has existed for a large number of years, according to information gathered from the natives.

Ulcerative Lymphangitis and *Epidemic Tetanus* are the two diseases most prevalent among horses and mules in Batangas and Tayabas provinces at the present time. Tetanus is fully described in most veterinary text books on medicine, but as to ul-

cerative lymphangitis I think that Dinwiddie's translation of Mosselman and Lienaux's "Veterinary Microbiology," on page 265, describes a micrococcus discovered by Rivolta and seen by Nocard in the pus and lesions of African farcy. Dinwiddie remarks that several practitioners have described the appearance of chancres of acute glanders on the nasal mucosa of animals attacked, but the bacillus of glanders was absent and the cryptococcus of Rivolta present in these lesions, thus showing a disease related to lymphangitis and not to glanders. Hayes' "Horses on Board Ship" mentions ulcerative lymphangitis, and also in his translation of Friedberger and Fröhner, Vol. I. If, as Nocard and Sivori state, the bacillus seen by him in the discharges and lesions of ulcerative lymphangitis in 1896 and the bacillus of Preisz are identical, then this disease has a wide field indeed. (See 16th Annual Report, Bureau of Animal Industry, by Dr. Salmon, page 638, on the "Nature, Cause and Economic Importance of Ovine Caseous Lymph-Adenitis," by Victor A. Norgaard and John R. Mohler). But it seems as if these two diseases were identical there would have been noticed more horses suffering from it in the United States. In Scotland the disease known as "Cruels" has been recognized for many years, and is identical with sheep disease caused by bacillus of Preisz, described by Norgaard.

The following facts are founded as the result of personal observations, with the assistance of Mr. Root, veterinarian in charge of the brigade and depot animals in Batangas P. I. The microscopical observations were made chiefly by Major A. L. Haines, Medical Corps, U. S. V., who also assisted me in my investigations of surra and rinderpest, not only in the laboratory of his hospital, but by personally attending many autopsies and collecting material for culture and examination.

ULCERATIVE LYMPHANGITIS.

Epizoötic Lymphangitis. African Farcy. Benign Farcy. Infectious Lymphangitis. Lymphangite Ulcereuse chez le chaval. Pseudo Tuberculosis. Tropical Ulcers?

This is a specific infectious disease, characterized by the ap-

pearance of morbid lesions in the lymphatics and the formation of multiple abscesses in the region of the affected parts, which eventually burst and form ulcers of an indolent nature, but with a tendency to heal, and leave cicatrices.

It seems to be of the nature of a miasmatic disease, and does not spread by actual contact, the microörganism gaining entrance into the system through a wound or even slight abrasion. In all cases there is evidence of having been a wound at the site of the first apparent lesion. A swelling, from the size of a pea to a walnut, is often the first thing noticed, or the leg may be swelled up without any tumor being apparent; but soon the lymphatics in the affected region swell, and later large areas become involved. In the case of a limb it often swells to an immense size, three or four times larger than normal; in time small circumscribed swellings appear, which eventually burst and suppurate, forming indolent ulcers, which later on heal, leaving cicatrices. This process goes on at irregular intervals. Although generally confined to one or more limbs, usually the hind, any part of the body may become involved later by metastatis. The bones, lungs, connective tissue and muscles are involved, as shown in the autopsy. Although ulcerative lymphangitis is common at all times of the year, it is more prevalent during the wet season (all tropical diseases seem to be). Sometimes the external lesions are few and confined to one locality; at other times the larger part of the body may be covered. The hind limbs are most commonly the seat of swelling and ulcers; next to them the fore. The animal becomes emaciated and the temperature elevated, especially during the first part of the disease. The animal has an unthrifty look, but appetite not much impaired. Occasionally nodules and ulcers appear upon the nasal mucosa or eyes. This disease runs a chronic course. The complications that may occur, but are rare, are pyæmia, metastatic pneumonitis and septicæmia. If anything, there is a greater percentage of mules attacked than horses.

The mortality is about 15 per cent. After recovery from

acute disease, the limb often remains thickened and scars are always visible.

The number of cases that have been brought to my notice during twelve months, from August to August, are as follows in the 1st Cavalry, of which there are eight troops, averaging 85 horses each:

"A" Troop, bays, 3, February, 1902.
"B" " " 2, December, 1901.
"C" " blacks, 4, January, 1902.
"D" " greys, 0.
"I" " light bays, 0.
"K" " bays, 1, March, 1902.
"L" " brown, 0.
"M" " sorrels, 3, August, 1901.

Transport animals of 1st Cavalry, all colors, 96, mules and horses, one brown mule.

In the quartermaster's stock of the 3d Separate Brigade, which averages 600 horses and mules, twenty-two head, chiefly mules, have been affected since last January, 1902. At present there are on sick report seven (four horses and three mules) from this disease.

The troops belonging to the 1st Cavalry are scattered far and wide: there are three at Batangas; one at Lipa, 18 miles east; one at Tayabas, 60 miles south; one at Buann, 4 miles north; one at Taal, 12 miles north, and one at Balayan, 30 miles north. This disease is often mistaken for farcy, but the clinical symptoms are easily distinguishable, besides there is no reaction to mallein, and in the troops where it has occurred no other cases have broken out except in "B" troop, which has at present two cases, both recovering.

Differential Diagnosis.—Glanders: Ulcers in nose; gland, in submaxillary; mallein test; glander bacillus; fresh outbreaks. Lymphangitis acute: Absence of ulcers; acute disease; hot and painful swelling; line of chief lymphatics on affected limb involved, without generalization; not infectious. Odema: Absence of ulcers; swelling mostly at dependent parts; gen-

eral appearance; no fever; disappearance on exercise. Surra: Hæmatozoa in blood; several animals wasting away; excessive weaknesss; no ulcers. Tropical ulcers: These are nothing more nor less than wounds or abrasions that have become dirty by infection; even the slightest scratch in this climate is liable to turn into a bad ulcer, which is surrounded by a thickened edge and has a hard base; they are often single, but may be multiple, due to animal scratching himself and causing abrasions; the local lymphatics are often swollen (it is noticeable that cavalrymen suffer from these sores in larger proportion than do infantrymen); the general health does not suffer, neither does the limb swell more than it ordinarily would when the animal is not exercised; there is no metastatic formation as in ulcerative lymphangitis; they heal slow, treated with simple surgical dressings, and in indolent cases actual cautery. Bursatte: Circumscribed growths, filled with a red spongy tissue (resembling granulation); bulging out from the surface of the skin; may be one or more in different parts of the body; intense itching; appetite not impaired; neither is general health; if cut or scraped bleed freely, and will be found to be composed of red granular masses, varying from a pin's head to a pea; the surrounding tissue is often involved and feels hard. Chiber: This consists of an itching skin disease, confined to the coronet, which is red and hot, and as the hoof grows after the infection, it will be found wrinkled, somewhat resembling the horn in chronic founder, only the ridges are smaller. None of the above conditions really resemble ulcerative lymphangitis and ought not to be mistaken for it.

Autopsy.—Animal emaciated; ulcers and abcesses in any part of the skin—the cheeks and jugular gutter and hind limbs mostly contain them; affected limbs enlarged; muscles very flabby and watery; bowels and stomach normal; liver pale, often almost white; spleen enlarged and pulp softened; kidneys pale and soft. All the lymphatics in the body may be affected but the submaxillary; inguinal and mesenteric almost always very much enlarged and soft; cervical and axillary may be in-

volved. Lungs normal; heart soft and flabby and contains large white clots, as also do all the large veins and bronchial tubes and the lymphatic spaces leading from affected glands.

Bacteriology.—Not able to furnish complete investigations at present, but will at some future time.

Treatment.—Iodide of potassium and iron, antiseptics, and actual cautery to ulcers. Have great hopes for the hyposulphite of soda, which has been ordered as as extra medicine for treatment.

THE WORST OF ALL.—It is related of the late Dr. Gurdon Buck, whose penchant for liberal incisions into inflamed parts was well known, that on one occasion he opened an abscess that had formed in his own person. In telling of the matter, he remarked: "It makes all the difference in the world which end of the knife you're at, and it's the worst of all when you're at both ends."

ONE ON THE AUTO.—Admiral Robley D. Evans recently took a spin in a hired automobile, and as he sped along the thought came to him that he might well own a machine. So he began chatting with the chauffeur, giving his opinion of the gasoline, the air, the electric and other forms of "auto" and wound up by saying: "And now, my man, you ought to be a judge. What kind of a machine would you select?" "Well sir," replied the chauffeur, "I've often thought it over, and came to the conclusion that if I wanted to buy one I'd save up my money and get a good horse."—(*The Horseman*).

THE lay press report the case of a man who awoke and missed his false teeth from his mouth. Believing that he had swallowed them, he at once felt gastric distress and submitted his case to a surgeon, who applied the X rays upon that organ, which seemed to verify the patient's suspicions. Gastrotomy showed an error in diagnosis, and just as the external sutures were being placed in position, the victim's daughter rushed in with the missing teeth, which she had found under her father's bed. It was said later that the man would die from the operation. [A veterinarian would have applied his common sense to the proposition, and forced the conclusion that it was an anatomical impossibility for a set of false teeth to have passed unconsciously down the œsophagus, and thus permitted the patient to live pending the quest for the missing grinders.]

THE PREPARATION OF BLACK-LEG VACCINE.

By Charles F. Dawson, M. D., D. V. S., Lake City, Florida.

Preparation of the Virus.—The virus from which the vaccine is made is obtained either from an animal which has died from natural infection or from one which has died from an inoculation with virus. The dark spongy portions of the meat from the thigh, shoulder or back are freed entirely of all fat and intermuscular fascia and are cut up into strips of about one-half inch thickness. These are then hung upon nails or strings in a dry, cool, airy, fly-tight room for about ten days, to dry.

When thoroughly dry, the meat is pounded up in a mortar, or quicker results are obtained by grinding it in a coffee mill several times. The resulting powder is then passed through a 20-mesh sieve to free it of connective tissue.

Preparation of the Vaccine.—To each gramme of the meat-powder are added two c.c. of water. Mix in an inverted round-bottom bell glass with the hand or a spoon. Spread the dough thus formed in a layer one-quarter inch thick upon a ground glass plate or marble slab, and cut therefrom by means of tin pans, three inches in diameter, and one-sixteenth inch deep, much in the same manner as cakes are cut from dough, with the exception that the pans are slid sidewise on the slab and not lifted from it. This method insures an even distribution of the dough in the plates which is not attainable by any other method. The filled pans are then placed on wire-bottom trays in a thermostat kept at 92–93° C. for six hours. The thermostat should be so ventilated that the added water is all evaporated in about three hours. At this time, the cakes should begin to curl up and at the end of the sixth hour, they should be thoroughly dry. To prevent the cakes from adhering to the bottoms of the pans, they should be smeared with vaseline by means of a sponge. The cakes should not be removed too suddenly from the oven, as they are prone to re-absorb moisture; but the oven should be left open to cool off gradually. When

cool, the cakes are put into jars or boxes in a moisture-free atmosphere. They are subsequently passed through a coffee mill seven or eight times, to reduce them to a very fine powder. This mill for grinding the vaccine should never be used for grinding the original virus, and considerable care must be taken throughout the process to keep the vaccine and virus separated. In fact, the vaccine should be prepared in a separate room.

For sieving the vaccine an 80-mesh sieve is used. The top layer of the cakes is difficult to pulverize and is almost insoluble, so it is better to discard that part which is not sufficiently fine after seven or eight passages through the mill. The vaccine is now ready for testing for strength and immunizing properties. Two or three guinea-pigs receive intramuscularly in the thigh three-quarters of the calf dose (10 milligrammes), the same number receive one-half a calf dose, and three others receive one-quarter a calf dose. Their temperatures are recorded daily. The vaccine is prepared for testing by grinding up ten calf doses (100 milligrammes) in 10 c.c. of water, and straining out the insoluble portion through a thin layer of medicated cotton moistened with water; or a linen filter may be used instead. The maximum guinea-pig dose would then be three-quarters of 1 c.c. of this solution; the medium dose would be one-half of 1 c.c., and the minimum dose would be one-quarter of 1 c.c. Ten days after their temperatures have reached normal the guinea-pigs should be tested for immunity, by the inoculation of a minimum fatal dose of the unattenuated virus. As every lot of virus differs in virulence from every other, the fatal dose must be determined. This is done by inoculating several guinea-pigs with varying quantities of strong virus, beginning with one-tenth milligramme and increasing the dose for each succeeding animal by one-tenth milligramme. The minimum fatal dose for an unprotected pig is the size dose for testing for immunity in the vaccinated ones. The test is not always satisfactory, and past experience has shown that a vaccine which causes a noticeable temperature reaction in guinea-pigs which receive the three-quarter and one-half calf

doses, is safe. Should a vigorous guinea-pig die from the small dose, the indications are the vaccine is too strong, and might produce black-leg instead of preventing it. Such vaccine should either be discarded, or it may be moistened with an equal weight of water, heated at 90° C. for two hours, and re-tested.

A typical test would be observed in a lot of guinea-pigs which showed a rise of two or three degrees as a result of the vaccination, and no reaction as a result of the subsequent inoculation of the minimum fatal dose of unattenuated virus. As a matter of fact, this result can rarely be obtained and the pigs often show discordant results. Sometimes those which receive the smallest dose of vaccine show the greatest reaction. Where possible it is far better, safer and more to the point to test the vaccine upon range cattle.

Instead of dispensing the vaccine in the form of a fine powder, as is now being done by several commercial concerns, I have shown that an aseptic fluid black-leg vaccine is perfectly safe. Its main advantages lie in the fact that it is ready for immediate use. It renders the cumbersome outfit of mortar, pommel, etc., unnecessary. If made in the laboratory by skilled persons there is greater uniformity of product, than where stockmen or others not used to doing such work, prepare the solution by the old method. Aseptic fluid vaccine is made by the following method: The vaccine powder, say one gramme, is rubbed up in a mortar with 20 c.c. of water. To the paste thus formed are added 80 c.c. of pure glycerine. After thorough mixing, the solution is strained through a cloth of sufficient coarseness to allow a coffee-colored liquid to pass through. A suction apparatus will greatly facilitate matters. Vaccine prepared in this way will keep for a long time and needs only a syringe to apply it.

For attenuating the virus or making the vaccine, I have used with success a specially-made hot-air oven, instead of the expensive oil ovens generally used. It is much more easily regulated, and can be used at odd times for drying or sterilizing glass-ware, or even as an incubator for cultures. It consists of

a galvanized iron cylinder with a ventilating pipe entering the cone-shaped bottom. This cylinder is surrounded by another two inches greater in diameter, and is fastened to the inner cylinder by straps. Outside of all is an inch jacket enclosing completely a dead air space. The whole is covered with asbestos. The cover fits loosely over the top of the cylinder, is double, and when down in its place, the bottom rests upon a felt-lined flange of the inner cylinder, making a tight joint. The space between the top and bottom of the cover then becomes continuous with that between the inner and outer cylinders. Six tubulations connect with the interior of the oven for regulator, thermometer, and for gauging the rapidity of moisture evaporation. A small opening in the top of the cover allows ventilation for the Bunsen burner below, from which the heat is derived.

DR. FRED GETTLER, U. S. Army, Philippines, died in February last in the military hospital at Laoag, Ilios Norte, P. I., of abscess of the liver.

DR. R. J. WITHERS, one of the founders and president of the Chicago Veterinary College, now and for a number of years a resident of Los Angeles, Cal., where he enjoys immunity from his old enemy (rheumatism), was recently married.

DR. WM. M. BELL, of Nashville, Tenn., formerly professor of surgery and dentistry in the Kansas City Veterinary College, visited the REVIEW office the last week in September. He took his brother, a physician, who had been under treatment in one of the New York hospitals, to his home in Kansas City, before returning to Nashville. His brother died two weeks after reaching home.

THE EFFECT OF A MEAT DIET UPON FOWLS.—Frédérica Houssay (*Comptes rendus de l' Académie des Sciences*), in a study of the influence of a flesh diet upon fowls, observed that the amount of urea excreted is increased to three times the normal amount; that is, the quantity is three times as great as upon a grain dietary. The observer noted also that the kidneys increased enormously, coming to constitute nearly one-third the weight of the animal. The peritoneum presented a great quantity of black pigment, and the fat showed a marked change in appearance and taste.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

TUMOR OF THE LIVER.

By HENRY TWEEDLEY, M. R. C. V. S., Buffalo, N. Y.

I submit the following case as tending to increase our knowledge regarding a class of diseases which has for a long time been in a more or less complete and uncertain state in veterinary annals—this being due either to the fact that affections of this organ are either very rare, or when they do occur, owing to uncertainty of diagnosis they are unable to be satisfactorily recorded. Reynal, in that splendid work, "Nouveau Dictionnaire Pratique de Médecine, de Chirurgie et d'Hygiene Vétérinaire," remarks, that if in veterinary medicine there are diseases still imperfectly studied, badly known and incompletely described, those are undoubtedly diseases of the liver. There is nothing more difficult than to form a certain diagnosis in affections of this organ; nothing more vague, nothing more uncertain, nothing more obscure, consequently, than that series of general symptoms, common at once both to alterations of the liver and to those which disturb the functions of the digestive and the respiratory apparatuses. The following case, which I think is rare, as I cannot find mention of it in our writings, is of some value in showing some of the symptoms which are present in these affections. The subject was a very small pony mare and had been affected for two or three weeks before I saw her, receiving little or no treatment. She was dull and off her feed (I have found in affections of the liver a remarkable loss of appetite), and on being led outside was very feeble and could only walk slowly and with evident difficulty; pulse 55 and full; temperature 103°; conjunctival mucous membrane of a dark yellowish red color, and slightly watery; Schneiderian membrane not much altered; buccal mucous membrane rather red looking, and mouth coated with a pasty material. But the most peculiar thing was the appearance of a swelling situated in the left hypochondriac region, just behind or bordering the cartilages of the ribs. This tumor was soft, the size of a large apple, could be pressed inwards, and when so, it remained for about half a minute and then gradually reappeared; no rupture

of the abdominal wall could be detected, but it seemed as if the end of the rib protruded; this latter appearance was not fixed, but was made to disappear on pressure. Another thing also a little remarkable was an elevation of both fore limbs alternately, first extending one well forward, holding it poised a little; then, pawing the air for a few moments, she would drop the limb on the ground, pawing the ground for some time. The same movement would then be gone through with the other limb. This I was told was her continual habit. These movements were so constant and characteristic that in my reading I have watched for any evidence of it, but the only place where I have noticed anything resembling it is in Digby Collins' "Horse Trainers' Guide," where, under the head of "Inflammation of the Liver," he says: "This is a very painful disease and may be ascertained by the horse holding up one or other of his fore legs during the spasms and turning round to look at his side frequently."

The swelling or tumor on the side showed no signs of tenderness on pressure, no heat nor any apparent change of the skin. Not to take up too much of your space, I will only state that I diagnosed it as an abscess of the liver, and prognosed death, asking to be informed when dead, so that I could make an autopsy. Died soon after, but as I could not go to the autopsy, the liver was preserved, having a large tumor of a fleshy appearance, the substance of the liver being soft and disintegrated. I was sorry I did not see it early enough to ascertain its exact nature.

A BLOODLESS THYROIDECTOMY.

By GEORGE H. BAILEY, State Veterinary Surgeon, Portland, Maine.

I was able recently to perform a bloodless operation upon a valuable horse belonging to Gen. John Marshall Brown, for the hazardous removal of an abnormal thyroid gland that had attained the dimensions of a man's fist, and already produced dyspnœa by pressure on the trachea whenever an attempt was made to use the animal in harness. The thyroid body is remarkable for the relatively enormous volume of its blood-vessels, its arteries being chiefly collateral with the common carotid, and forming plexuses on the tracheal walls. While the function of the gland does not seem to be thoroughly understood, it certainly has a peculiar influence over the process of nutrition, judging from the effect of loss of the secretion of the gland.

The immediate dangers of this operation are injury to the vagus and dangerous hæmorrhage. The latter was entirely averted by the use of the solution of adrenalin chloride, $\frac{1}{1000}$. The solution was resorted to only to control capillary bleeding and render every step of the operation clearly visible, but it also made possible a practically painless and successful procedure. After using hypodermatically a solution of cocaine and freely spraying the incision with solution adrenalin chloride, it was found that the anæsthetic property of the cocaine was perfectly blended and preserved.

Catgut ligatures were employed; the wound was closed with interrupted sutures, and upon removal of the aseptic dressing on the second day not even the smallest secondary hæmorrhage occurred, and union by first intention seems already assured.

I have full faith that the solution of adrenalin chloride will furnish the veterinary profession with a most important and valuable adjunct in all such operations, as well as in neurotomy and tenotomy and so forth, where capillary bleeding has heretofore proved to be so easily and freely induced and not very readily controlled.

[NOTE.—Adrenalin chloride is described by Prof. Liautard in this number of the REVIEW in his interesting "European Chronicles."—R. R. B.]

URINARY CALCULI IN A DOG.*

By C. A. WHITE, M. D. C., Chicago, Ill.

The patient, an Irish setter, four years old, was brought to the hospital with a history of urethral stricture, and suspecting calculi I passed a silver probe and found posterior to the os penis a collection of calculi varying in size from a pin head to a five-grain quinine pill. These I removed after placing animal under an anæsthetic, by cutting through to the urethra and removing with a small curette, afterwards irrigating the bladder and urethra with a one per cent. solution of permanganate of potash. In three weeks dog was returned to owner, wounds having healed by granulation, and animal seemed in good health up to nine months following the operation, when the dog was said to have been taken suddenly sick while on a hunting trip in North Dakota and returned to the hospital and died twenty-four hours later.

On post-mortem examination it was found that both kidneys were completely disintegrated, the capsule of each containing

* Reprinted from the *Quarterly Bulletin of the Chicago Veterinary College.*

a dark red semi-fluid material mixed with pus. Each kidney had attained the size of a teacup. The right kidney had ruptured and liberated its contents in the abdominal cavity, and in the pelvis of each kidney were found calculi, varying in size and collectively weighing two ounces.

A RATHER INTERESTING CASE.

By W. H. DALRYMPLE, M. R. C. V. S., Baton Rouge, La.

Owing to temporary indisposition of the local veterinary practitioner, I was called, on August 23d last, to see a mule belonging to the City of Baton Rouge that had met with an accident on the street. The animal had been engaged in the scavenging department, and, while the man in charge was busy some little distance from his cart, ran off, and fell on a broken, irregular piece of crockery, or earthenware, which penetrated the abdominal wall in the median line, about 10 or 12 inches posterior to the ensiform cartilage of the sternum, and punctured the intestine. When seen by me, a short time after the accident, a watery fluid was gushing through the external opening onto the ground. I at once saw that the fluid was issuing from the intestine, and which, although coming away incessantly, was intermittent as to quantity, due, no doubt, to the irregular force given to it by peristaltic movement. It should be stated that the broken piece of "jug" had a neck on it about two inches long, the penetrating end being about half an inch square, blunt, but having four cutting edges. Owing to the shape of the offending body, and the presumably irregular opening it was most likely to make in the wall of the intestine, it was a question whether surgical interference (enlarging the external opening and stitching that in the bowel) would not produce greater irritation and graver after-effects than simply affording protection and support to the parts, and depending upon *vis medicatrix naturæ* to do the rest. The latter course was decided upon. The animal was taken to the city's stable, a thick pad of lint cotton, saturated with carbolized oil (3 per cent.), was placed over the external wound, and a broad body bandage on top. There was an almost continuous dripping, with periodic spurts of fluid, for a period of about 11 or 12 days, but the animal never, from the first, showed any indication of febrile disturbance. Fluid aliment was prescribed, which, however, was restricted so as to permit of the healing of the intestinal wound as early as possible. When first seen, a small portion of the

wall of the intestine was inclined to protrude, which was afterwards permanently reduced by the continuous pressure of the antiseptic pad and bandage. On my leaving for the Minneapolis meeting of the A. V. M. A., on August 30th, the injury had then been in existence ten days, and a certain amount of fluid was still dripping from the wound through the porous dressing, and I left instruction, should symptoms of abdominal pain supervene, that the local veterinarian was at once to be summoned, as I feared the possibility of peritonitis. On my arrival home on September 9th, and on making inquiry regarding the case, I was informed that the fluid had ceased dripping on about the 12th or 13th day after the accident, the outer wound almost healed up; that the mule had been working for two or three days, was on regular feed again, apparently all right; and has remained so ever since, which, at this writing, is thirty days since date of injury. Within the past few days, this same animal has been again engaged in the runaway business. This is a case in which it may be said, that, perhaps, "discretion was the better part of valor," and shows what nature will do, unassisted, so to speak, in serious abdominal injuries, except in the form of the necessary protection against infective media from without, and a rational alimentation. Possibly the above hastily reported case may be of interest to some of the readers of the REVIEW.

UNUSUAL CASE OF LAMENESS.

By HENRY TWEEDLEY, M. R. C. V. S., Buffalo, N. Y.

The following case is one which I think has been seldom seen; at least, in quite an extensive reading on the subject I have not met with anything approaching it.

The subject was a heavy draught horse in excellent condition, and had not previously suffered from any lameness. He

A.—Deposit between the laminæ forcing the os pedis downwards and backwards.
B.—Os pedis protruding through the sole.

rather suddenly became lame on both fore legs, without showing anything prominently, to account for the lameness; was not excessively lame, but was quite hampered in going; careful examination failed to reveal much positive information on the subject, so his coronets were rubbed with stimulating liniment daily; he continued in this condition without any material change for about a week, when on being examined one morning he was found to have both coffin bones protruding through the soles, presenting an appearance as indicated in the cut.

A solid deposit had formed between the wall of the foot and the os pedis, forcing the latter through the sole. This deposit, which I can only account for as being of a rheumatic or gouty nature, must, I think, have formed rather suddenly, as no gradual change had been witnessed in the sole, a fact which would have been noticed, as the horse was under careful watch owing to the difficulty of coming to a correct diagnosis regarding it.

This termination I have seen in laminitis, but in this case there were no symptoms of laminitis or acute pain. The horse was killed.

DR. ADOLPH EICHHORN, of the Bureau of Animal Industry, and editor of "German Review" for this journal, returned from Europe on Oct. 20, having visited Hungary, Germany, Italy, France and England, spending most of his time on the Continent at the veterinary colleges, and inspecting the abattoirs of the principal cities. He will tell REVIEW readers a little later the details of his trip. He spent several days with Dr. Liautard in Paris, who introduced him to the famous men of Alfort.

JOSEPH F. LENNON, M. D. C., of Joliet, Ill., died in that city, on Aug. 4, after an operation for liver trouble of long standing. He had built up an extensive practice, and the Joliet *Republican* speaks of him in the highest terms for professional ability and personal probity. He was thirty-six years old.

JOSEPH B. HUGHES, of New York, sued Felix Warburg, of Kuhn, Loeb & Co., bankers, for $50,000 for damages occasioned by the frightening of the former's team by the latter's automobile. The jury in the United States Circuit Court awarded the plaintiff $12,070, he having lost a valuable horse and sustained injuries to his spine. This verdict establishes a precedent in the matter of horses frightened by automobiles.

DR. T. S. CHILDS, of Saratoga Springs, N. Y., entered the New York State Veterinary College, 1st inst., for the purpose of taking a special course in surgery.

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

ŒSOPHAGOTOMY IN THE CAT [*J. R. McCall*].—Although the two cases recorded by the author present nothing very unusual, they are nevertheless interesting, illustrating, as is said in the report, the *accommodating power* of the cat under peculiar circumstances, and may help to justify the old saying that cats possess nine lives. In the first animal, which, of course, presented all the symptoms of œsophageal disturbance, a sharp projection was found in front of the breast, just at the arch formed by the two first ribs. Upon this an incision was made, and with forceps a lady's hat pin (7½ inches long) was extracted. To remove it entirely the incision had to be enlarged to permit the round black glass head to come out. After a few days the animal was sent home. The second case was very similar, and there again the point of the pin was detected at the entrance of the chest between the two first ribs. A similar operation was followed by the same result, with the exception that acute extensive inflammatory swelling took place in the neighborhood of the wound, which, however, subsided under proper treatment. In both cases the foreign body was swallowed head first and reached the stomach and passed through the pyloric orifice into the intestine.—(*Vet. Record.*)

A RECORD IN THE USE OF CHLOROFORM [*C. Pierce, F. R. C. V. S.*].—After referring to extracts from Fröhner, who, during the years 1898–99, had operated on 142 horses under chloroform without an accident, and from Cadiot and Almy, who in their "Traité de Thérapeutique Générale des Animaux Domestiques," who out of 800 cases recorded one death from chloroform intoxication, one from asphyxia and two from pneumonia, and also cases of vomiting and paralysis of the vocal cords, the author gives a brief record of his experience, consisting of operations performed upon 2100 horses, and never had one fatal case. Before he made use of the anæsthetic he averaged about one accident in four hundred cases—such as fractures of the vertebræ, pelvis, ribs, etc. Since its use the only trouble he had is a fracture of the cervical vertebræ due to carelessness in casting.—(*Vet. Record.*)

MAMMITIS IN A HEIFER WITH EXTENSIVE SUPPURATION [*W. Scott, F. R. C. V. S.*].—The animal had for four months been suffering with inflammation of the udder, and, notwithstanding treatment, grew worse, the mammæ having acquired enormous proportions. "It was exceedingly tense to the feel, somewhat tympanitic on percussion, and on succussion a liquid sound could be detected." The gland measured 5 feet 3½ inches in circumference on its widest part. The quarters of the organ seemed to be entirely obliterated, the whole coalescing and the teats themselves hung as rudimentary projections. The diagnosis was positive, and the tumor tapped at its most dependent part with a lance-shaped hot iron on account of the thickness of tissue to go through, being nearly three-quarters of an inch. The fluid collected was between four and five gallons, besides masses of broken down parenchyma, yellow in color, friable in consistency and odorless. The cavity was treated antiseptically and the organ returned to the size of an inactive gland.—(*Vet. Record.*)

ARE BOTS EVER FATAL?—The question has already been presented and discussed, and has *de novo* received a new impulse by a few articles that have appeared lately in the *Veterinary Record.* In one of them a case is recorded of a horse that died with colic, and in which the stomach and duodenum were found full of bots, a mass of them detached from the stomach having completely plugged the duodenum and given rise to enteritis and peritonitis. Another case is then mentioned by E. L. Dixon, where a three-year-old colt, which had died from colic, and in which at the autopsy the walls of the stomach were found ruptured and an immense number of bots found attached to the cuticular and the villous coats of the organ. Finally Prof. J. R. McCall says the question is difficult to answer, as he has seen many horses affected with bots which seemed to be out of condition by their presence, while others were in the best of condition, and having died from other causes, althongh their stomachs were filled with those parasites. The theory of Bracy Clark, that by their presence they excite the gastric function cannot be entertained, and it must not be ignored that bots have been known to perforate the wall of the stomach and have found their way into the peritoneal cavity, and evidently their presence cannot at all events be regarded as beneficial. Prof. McCall sees no reason why bots if present in large numbers in weak, thin horses may not prove fatal by inducing colics, and latterly enteritis or peritonitis.—(*Vet. Record.*)

CHLORETONE AS GASTRIC SEDATIVE IN DOGS [*Chr. Taylor, M. R. C. V. S.*].—This drug has given the author excellent results in canine practice, and he records two cases where its use relieved the animals very rapidly. To one bitch twelve months old, which was suffering with distemper, had constant vomiting of all kind of food and was in a state of apparent collapse, he gave five grains of chloretone crystals in gelatine capsules. This was followed by several hours of good sleep, and when food was given the vomiting had entirely ceased. Five more grains were given later, when the nervous twitchings of the chorea which she also had stopped and rapid recovery went on. To another older animal, suffering with ascites, probably due to liver disease, and which had constant vomiting of all foods and fluids, although she was almost in a dying condition and unable to stand any tapping operation, the author gave also five grains of chloretone morning and evening. After the first dose the vomiting had ceased and the animal kept all the food, which was given to her up to the time of her death, which occurred three days later.—(*Vet. Record.*)

CARCINOMA OF THE BLADDER OF A HORSE [*Prof. J. McFadyean*].—An old chestnut gelding, about twenty, had for a year previous to his death passed blood with its urine. At the post-mortem special attention was given to the condition of the bladder, and it was found that the anterior extremity of that organ presented a remarkable depression, due apparently to an introversion of the wall at that point, and when the bladder was grasped, it seemed as if the cavity was occupied by some firm body. A slit through the bladder exposed this body under the shape of a tumor, about the size of a goose's egg, growing from the anterior end of the bladder. Its surface was rough, ulcerated and at some places covered with small blood clots. Its consistency was rather firmer than that of liver and on section it presented a white surface finely mottled with grey. The urine contained in the bladder was turbid, tinged with blood, but without putrid odor. Subsequent microscopic examination showed that the tumor was of carcinomatous nature. The other organs and lymphatics were normal.—(*Journ. Comp. Patho. and Therap.*)

PECULIAR CASE OF INTUSSUSCEPTION OF THE SMALL INTESTINE OF A HORSE [*J. McFadyean*].—The many peculiar forms that intussusception may present are increased by this very interesting case, which occurred in a seven-year-old chestnut mare and was found at the post-mortem, made when she

had succumbed to abdominal trouble. "When the abdominal walls were reflected, the peritoneal cavity was found to contain a considerable quantity of deeply blood-tinged liquid and the displacement of the intestines showed that the mesenteric veins of the posterior part of the small intestines were much distended with blood and had hæmorrhages along their course. Further examination revealed an intussusception, which appeared to begin about six inches from the termination of the ileum. On removing the whole intestinal mass it was found that three feet of intussuscepted ileum had passed into the cæcum, whose contents were stained with blood. The loop of the small bowel in the cæcum had a spiral arrangement and its outer surface was formed by the everted mucous membrane, which was deeply congested. The loop was also tympanitic."—(*Journ. Comp. Patho. and Therap.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

PARALYSIS OF THE EXTERNAL POPLITEAL SCIATIC NERVE DUE TO THE EVOLUTION OF HYPODERMIC LARVÆ IN THE HORSE [*M. A. Darrou*].—On account of numerous subcutaneous abscesses due to the development of hypodermic larvæ a horse was laid up. He had them on the back, the ribs, the croup; each developed at various times, and when the tumor had a certain size the parasite was readily extracted through an incision of the skin and the wound treated antiseptically. One day the horse became suddenly very lame on the right hind leg, with all the symptoms of paralysis of the external popliteal sciatic nerve. The lameness kept up, when, after three days, a small œdematous swelling was observed on the upper part of the leg on its antero-external face. Suspecting the possible development of a larva pressing on the sciatic nerve, to facilitate its exit an incision was made over it, a little below and back of the external lateral ligament of the stifle, on a level with the point where the bifurcation of the nerve takes place. Two days after a vesicular larva, fusiform and similar to those of the other parts of the body, made its appearance through the edges of the incision, and was removed. In the evening the lameness was only very slight and all symptoms of paralysis had subsided.—(*Rev. Veter.*)

GASTRO-ENTERITIS BY TRAUMATISM IN A DOG [*M. A. Darrou*].—This case is recorded to show the necessity of minute examination of the buccal cavity even in cases where only gastric disturbances are present. A fox terrier had frequent vomiting and nausea following deglutition of solid or liquid food. The intestinal functions are sluggish, injections and the use of the curette being necessary to empty the intestines, and yet there is no constipation proper. The conjunctivæ are slightly infected and there is general prostration, as observed in gastro-intestinal affections. After the administration of a dose of ipecac, bicarbonated water, and milk, the animal seems somewhat relieved, and the vomiting ceases, appetite returns and the ordinary diet is resumed. Then the animal shows efforts to spit; and the opening and closing of the jaws with protrusion of the tongue call special attention to the mouth, when, on raising the tongue, its frænum is seen cut transversally, and at the bottom of the solution of continuity a loop of strong thread is detected surrounding the tongue. The ends of the loop are tied near the pharynx and continued by a piece which must have extended as far as the pylorus, as at the extremity it is colored with yellow matter whose nature is too plausible. How was this foreign body not detected? At first the dog had only vomiting, with other symptoms justifying the diagnosis of gastritis, and as he refused all solid food, the traumatic nature of the trouble could not be supposed, the mouth not having been examined. While recent, the foreign body in the pharynx produced only nausea and vomiting, and later on there was a kind of accoutumancy and the animal was only disturbed by the gradual section of the frænum of the tongue by the loop of thread that each motion of deglutition had a tendency to draw towards the base of the organ.—(*Revue Veterin.*)

CURIOUS CASE OF RADIAL PARALYSIS [*M. Leflat*].—Called urgently to see a horse reported as having a fracture of the shoulder, the author was told that while at work he had suddenly become lame without having made a misstep or slipped. The animal is unable to walk, abduction of the leg is very painful and there is a dropping of the elbow, which is characteristic; yet when the leg is flexed, a crepitating noise is readily heard. Evidently the radial paralysis was present, but is there also a bony lesion? This supposition of fracture is laid aside after two or three days, as no manifestation of such lesions occurred. The animal was then put under treatment, but without any satisfactory result, and, notwithstanding fric-

tions and walking exercise, no change for the best. On the sixth day after the injury, the condition in the evening remained the same. But on the seventh day in the morning, all bad symptoms had disappeared; the animal stood straight, walked without lameness and trotted with only slight irregularity. In four days the horse went to work. Evidently the radial lesion was due to a blow from the pole of the wagon, and for the crepitation, it no doubt came from the articulation.—(*Rec. de Med. Vet.*)

PSEUDO-NEUROMA OF MEDIAN NEUROTOMY [*L. Dupas*].—The presence of a tumor at the extremity of the central nervous end after plantar neurotomy is not uncommon. Does the same occur after the section of the median? The author has not seen it recorded and on that account publishes the following:—A nine-year-old army horse has been disabled on several occasions and finally became very lame on both fore-feet with navicular disease. With all modern care and preparation he was operated upon on one leg, the right, by median neurotomy, and when relieved of the hobbles trotted sound on that leg. The wound, however, was somewhat troublesome in healing; large swelling, which kept on increasing and interfering with the motions of the leg, having lasted for several days. Finally it subsided and then a tumor, quite large, was detected at the point of cicatrization of the first operation; it is elongated, fusiform, rolling under the fingers, very sensitive and gives rise to excessive lameness. It was evidently a pseudo-neuroma. The animal was again operated upon and the growth developdd on the external face of the central extremity of the nerve was removed after minute dissection to isolate it from the posterior radial artery, which laid underneath it and was adherent to it. The cicatrization went on and finally the animal was returned to work.—(*Rec. de Med. Vet.*)

GENERALIZED CARCINOMATOSIS [*Chr. Darmagnac*].—This bay horse has been losing flesh considerably of late and is given rest. He has all the symptoms of excessive anæmia, shows ascites well marked, nothing towards the heart, and examination of the liver reveals nothing. Rectal examination reveals a large tumor, partly closing the pelvic cavity and extending forward, it is very painful. To this is attributed the abdominal collection. The symptoms kept on increasing and finally the animal was destroyed. On opening the abdomen about 50 quarts of fluid were removed, and there appeared an immense number of tumors upon the abdominal walls and the visceræ of

that cavity. They are of various forms and sizes and all have the same macroscopic characters: general encephaloid aspect, white-yellowish in color, sometimes reddish, easily crushed and cut with the scalpel, and letting out a whitish fluid (cancerous fluid) on glass slides. The first of these growths, the largest, extends from the left iliac fossa to the kidneys. It is irregular in shape, weighs 32 pounds, and seems developed between the sheaths of the colic mesentery, of which but small traces remain. It is adherent to the vertebræ, the psoas muscles, surrounds and presses upon the abdominal aorta and its terminal branches and the large veins. It envelops completely the left kidney. The others or secondary tumors seem more recent in formation and are spread on the abdominal walls, the mesentery, on the tracts of the blood vessels, the two curvatures of the stomach, the spleen, the liver and even the bladder. The great omentum covered with them weighs 14 pounds. These growths are not so numerous in the thorax, although they are also disseminated all over. The diaphragm on the thoracic surface has only a few, while on the abdominal face they form a thick coat. In the lungs there are few patches of hepatization; the pericardium and the heart are free. The lymphatics are hypertrophied and softened. The cerebro-spinal system is free from them. Experimental inoculations to rabbits and rats gave no result. Histological examination of these tumors show them to belong to the encephaloid type of carcinoma—one of the most severe varieties of cancer.—(*Rec. de Met. Vet.*)

ASCARIDES IN A CALF—BAD ODOR OF THE MEAT [*M. Mathis*].—A five-weeks-old calf killed for the butchery is found having in the last parts of its small intestine and in the large 394 ascarides, which weighed altogether about three pounds. While alive, the animal had been delicate, with poor digestion; it had a marked peculiar odor, which spread through the barn he was kept in and which was peculiarly strong and disagreeable at the mouth. During three weeks that he was watched he only passed one worm. The cadaver had a *sui generis* odor, very disagreeable and increasing as the meat was exposed to heat, when it irritated the eyes of those who handled it. This odor was not that of ether nor of ammonia, but more that of a mixture of these two with methylic acid. Long cooking did not remove it, but seemed to increase it.—(*Journ. de Zoötech.*)

DR. JOSEPH R. HODGSON, of Brooklyn, N. Y., recently successfully underwent his second operation for appendicitis.

CORRESPONDENCE.

RINDERPEST AFFECTING DEER IN THE PHILIPPINES.

BATANGAS, P. I., Aug. 18, 1902.

Editors American Veterinary Review:

DEAR SIRS:—During my investigations of rinderpest on the island of Marinduque, P. I., in April, 1902, an American officer of the Army Medical Corps, stationed at the garrison there, stated that he, with some companions, were out hunting deer in the mountains and approached quite closely what appeared to be a fine looking buck. He raised his rifle to shoot, but something about the deer caused him to lower his piece. It was then noticed that the animal was staggering, and the officer remarked that whilst watching it, the deer dropped to the ground dead. From what he had observed from seeing a large number of sick and dead cattle that were suffering or had died from rinderpest, he considered that the deer presented a well marked case, exhibiting all the symptoms of rinderpest as seen in the cattle and cariboa that were affected on the island. I might add that the natives reported most of the deer on the island (which is about 28 miles long and 23 miles broad) had died from the "peste."

COLEMAN NOCKOLDS,
Vet. 5th Cavalry, U. S. Army.

SOME MISSOURI MISSTATEMENTS STRAIGHTENED OUT.

KANSAS CITY, MO., Oct. 13, 1902.

Editors American Veterinary Review:

DEAR SIRS:—I wish to make a correction of a confusion of terms in regard to the State and Interstate veterinary associations in this locality.

Dr. J. J. Repp, in an article entitled "External Ulcerative Ano-Vulvitis," read before the 39th annual meeting of the A. V. M. A., and published in the October number of the AMERICAN VETERINARY REVIEW, on page 595, relates that Dr. S. Stewart made a verbal report on the same disease before the Missouri Valley Veterinary Medical Association, Feb. 9, 1898. This was the Missouri Valley Veterinary Association. The word "Medical" does not belong there. It is the Interstate Association, whose members live in Nebraska, Kansas and Missouri.

Further on he relates that Dr. C. Miller read a paper on the same disease before the Missouri Valley Veterinary Medical

Association, held in St. Louis, Oct. 3 and 4, 1900. The word "Valley" does not belong there. This was the State Association, whose members live within Missouri.

On page 705, same number, it was Dr. Chas. Doerrie who presided, instead of "Doenie." This mistake is probably due to my way of making a double "r."

Very truly yours, B. F. KAUPP, *Secretary.*

VETERINARY MATTERS IN THE PHILIPPINES.

SANTA CRUZ, LAGUNA PROV., P. I., July 26, 1902.

Editors American Veterinary Review:

DEAR SIRS:—To-night I received the back numbers of the AMERICAN VETERINARY REVIEW in good shape, and as reading matter is scarce, I can promise you that they will be read through, "ads." and all.

There is nothing of interest going on now in the Philippines. The 8th Infantry have gone home; they were stationed all around this place, and had Santa Cruz for headquarters. I have still about 250 head of quartermaster stock, horses and mules. "I" Troop, of the 6th Cavalry, has about 75 head. Now that the rainy season has set in "surra" is showing up fast. The transporting of any animals or herds from the Philippines should be watched closely and prohibited, as all animals are likely to carry the disease—horses, cattle, dogs and monkeys. I have found it in all. As for man, I am not prepared to say. I have examined flies that are full of blood and have found from one to three germs in them.

We have quite a number of cases of glanders, a few cases of tetanus, and some deaths from heat exhaustion.

The greatest drawback is the lack of shelter for the stock. They are all tied on picketlines, and we have few drugs, and they are of a poor quality, to say nothing of instruments.

Yours truly, J. MAC SMITH,
Q. M. D. Veterinarian.

PRESIDENT JAMES LAW, of the New York State Veterinary Medical Society, has appointed as delegates to the Veterinary Medical Association of New Jersey, Drs. Roscoe R. Bell, George H. Berns, E. B. Ackerman, Robert W. Ellis, and James L. Robertson.

THE NEW YORK STATE VETERINARY COLLEGE opened its session with a class of 62 students, 31 of whom are freshmen.

SOCIETY MEETINGS.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

This live local organization held its regular monthly meeting at Paterson, N. J., on Tuesday evening, Oct. 7, with President Wm. Herbert Lowe presiding. After the transaction of routine business and the consideration of matters pertaining to the welfare of the Association and the profession, Dr. J. Payne Lowe, of Passaic, read the following paper upon the subject of

"PROFESSIONAL ETIQUETTE.

"*Mr. President and Fellow-Members:*

"The subject assigned to me is an important one to each of us individually, and to us collectively as members of the veterinary profession, therefore, it is worthy of the consideration of this Association.

"It is only necessary for me to make mention of the rapid advancement our profession is now making in New Jersey,—of her strong State Association and the good work it is doing,—of the law passed at the last legislature regulating the practice of veterinary medicine, surgery and dentistry,—of the appointment by the Governor of a State Board of Veterinary Medical Examiners,—of the recognition our profession and associations are receiving from other professions and kindred organizations, and now of the organization in this county of the first county society in the State. In view of all this, more is to be expected from us. Is it not important that each of us, at all times, live up to a proper standard of professional etiquette? Etiquette has been defined as the formalities or usages required by the customs of polite society, or professional intercourse. It is not alone sufficient for the veterinarian of to-day to have the proper qualifications (both theoretical and practical), but he must observe the rules laid down by professional etiquette, for his own individual benefit and for the welfare of his profession.

"Every individual on entering the veterinary profession is entitled to all its privileges and immunities, and it then becomes his obligation to exert his best abilities to maintain its dignity and honor and to aid in advancing it as a science.

"We have in Passaic County, I believe, about twenty licensed veterinarians, all more or less actively engaged in practice, and coming into contact, directly or indirectly, more or less frequently. It is necessary for each of us to plainly under-

stand where our duties leave off, and where those of the next man begin. Under the law, we all have, whether graduates or non-graduates, the same legal right to practice, and, therefore, all are entitled to the same consideration.

"Often an owner has an animal taken acutely sick, or severely injured, and he summons a veterinarian, but perhaps the doctor is out and so he hurriedly calls another, who happens to be in, and he responds to the call at once. After a short time the first called doctor returns, and he too responds to the call, only to find someone there ahead of him. Under usual circumstances the case belongs to the man arriving first, so after a few brief words with the owner and veterinarian in charge, he he should bid them good-day and retire, as it is undignified for him to remain, and perhaps his presence is annoying to the attending veterinarian, who at this time is busy and does not care to be interrupted; but there are duties of etiquette for the attending veterinarian to perform. He should, if possible, leave his patient a moment and greet his brother practitioner and make him feel at ease, and if the owner has acted rashly in calling upon both at or about the same time, he should explain to him that he has interrupted a practitioner in his routine work. Further than this, he should sustain his brother in collecting a fee for his visit; unless, of course, he has been tardy in responding to the call, in which case he should not expect a fee. If this is carried out with tact in practice it will have the effect of educating the laity, and prevent much annoyance.

"Again, sometimes two veterinarians are treating cases for their respective clients in a boarding stable. Certainly neither one of them should so far lower his dignity as to even attempt to examine or express an opinion of the case in charge of his brother practitioner.

"Sometimes a case under the treatment of a qualified practitioner does not show the improvement that the owner, from his standpoint thinks he should. It is only natural for him to do a lot of thinking, and here is where a lot of tact is required on the part of the veterinarian in order to hold the confidence of his client. Different clients will act differently under such circumstances. One may without the knowledge of the attending veterinarian, call in another practitioner. As a rule, if the second veterinarian so called in has his eyes open, and has the desire, he will discover what is going on. Knowing this, he should call upon the owner for an explanation, and should make no examination or give any opinion or treatment, until

he knows that the other veterinarian has been properly dismissed.

"If a consultation is desired by the owner, it is good sense for the practitioner to at once accede to it. In consultation the first object should be for the good of the patient, in the interest of the owner. Perhaps the case is complicated, or obscure in its nature, and a consultation with a man of experience and judgment will enlighten the attending veterinarian. Or, again, it may be held for the protection of the attending veterinarian, viz., in a necessarily fatal case where the owner thinks possibly something more might be done to save the life of his animal, and here the consulting veterinarian can restore the owner's confidence in his doctor. Or, again, a consultation may be held between several veterinarians with the object in view of dividing the responsibility, as in the case of a valuable animal that may have to undergo an operation; or, again, it may be advisable to hold a consultation where litigation is apt to follow, in order to have sufficient expert evidence to satisfy the court of the conditions that existed.

"However, whatever is the object of the consultation, no rivalship or jealousy should be indulged in, and candor with all due respect should be exercised toward the veterinarian having charge of the case. The consulting veterinarian should, so far as he can conscientiously, sustain the attending veterinarian. After the history of the case is given and an examination of the patient made, they should retire for deliberation. Theoretical discussions should, so far as possible, be avoided as causing perplexity and loss of time.

"The conclusion arrived at should be given to the owner by the attending veterinarian in the presence of all concerned, and then, as a matter of courtesy to the consulting veterinarian, he may be asked to give the owner, in his own words, his opinion of the case. If the attending veterinarian has made a mistake in his case, and it is apparent, he should not take it to heart, if his brother points out his error. As long as it is done in a kind way and he is not unnecessarily exposed, he should feel that he has gained by the experience given him—and above all, young men in the profession should show due respect to those older and with more experience. Perhaps on some rare occasion the two veterinarians cannot agree (a thing to be regretted). If the difference of opinion is of any practical importance they should call in the third man and agree to abide by his opinion.

"I might go on almost indefinitely expatiating on the subject

of etiquette, but will only add that as professional men we should observe the rules of etiquette in a liberal way, not only among ourselves as veterinarians, but among all scientific men and to people in general.

"Gentlemen, I do not wish it to be thought that this is intended as a criticism toward the practitioners of Passaic County, and I have no fault to find, for it has been my pleasure and profit to meet many of you in a professional way, and can truthfully say that I have always been treated with perhaps more consideration than I deserved; however, we can all improve, and if the few salient points I have tried to bring out in my paper are actually lived up to in practice by the veterinarians of this county, it will elevate us and our profession in the eyes and minds of the community, and we will reap the benefit thereof."

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

This Association met in the Central Hotel in Charlotte on May 20th, 1902.

Three new members were added to the Association, several papers of interest were read, and the Texas fever situation in the State was discussed. A board was appointed to confer with the North Carolina Board of Agriculture with a view of having some laws passed in regard to this disease at the next legislature.

Election of officers resulted as follows:

President—Dr. Thos. B. Carroll, Wilmington.

Vice-President—Dr. W. H. Morris, Elizabeth City.

Secretary—Dr. J. W. Petty, Greensboro.

Assistant Secretary and Treasurer—W. C. McMackin, Raleigh.

The Association adjourned to meet in December next, in Raleigh.

J. W. PETTY, *Secretary.*

DR. M. H. MCKILLIP, President of the McKillip Veterinary College, Chicago, was selected by the Board of Directors of the Chicago Horse Show Association as chief veterinarian for the very successful exhibition held by it from Oct. 27 to Nov. 1. He had for his staff Drs. Frank Allen, N. E. Nettleton, and Gerald E. Griffin (of the U. S. Army).

HENRY B. AMBLER, D. V. S., Chatham, N. Y., was official veterinarian to the New York State Fair, held at Syracuse, Sept. 8 to 13.

NEWS AND ITEMS.

DR. PAUL FISCHER is now State Veterinarian of Ohio.

DR. S. S. BROOKS has discontinued practice at Brooklyn, N. Y., and removed from the city.

DR. J. D. SHEPPARD, of Langdon, N. D., has been appointed professor of veterinary science in the North Dakota Agricultural College, Veterinary Department, at Fargo, N. D.

DR. J. C. BURNESON, late veterinarian to the Ohio Agricultural Experiment Station, Wooster, Ohio, has received an appointment in the Bureau of Animal Industry and assigned to duty at the G. H. Hammond Co., Hammond, Ind.

DR. J. R. PETTY died in Greensboro, N. C., Aug. 15th, from injury sustained by being thrown by a horse on his face while performing an operation for stringhalt. He was only twenty-three years of age, and had just graduated in veterinary science last spring.

NO CIRCUMSTANCE contributes more to the financial advancement of the veterinarian than the popularity of the modern horse show, which stimulates the horse owner to possess fine animals and to keep them in the best physical condition. It behooves the veterinarian to encourage them, and, where possible, to take an active part in them.

THE QUARANTINE LINE AND THE OPEN SEASON.—At the recent meeting of the Interstate Association of Sanitary Boards at Wichita, Kansas, which was well attended, the Committee on Line and Open Season, of which Dr. J. C. Norton, of Phœnix, Arizona, is chairman, submitted their report, of which the following are the salient points: "(1) We recommend to the Department of Agriculture that the National Quarantine Line remain the same as last year, with the exception that the counties of Moore and Bledsoe in the State of Tennessee be placed above said line after being examined and recommended by an agent of the Bureau of Animal Industry. (2) We recommend that cattle from below the Federal Quarantine Line be allowed to be moved to points above said Line within the States of Texas and Kansas and the Territory of Oklahoma, between November 1st and December 31st, 1902, and to points within the States of Virginia, North Carolina, Tennessee, and Missouri and the Territories of Arizona and New Mexico, between November 1st, 1902, and January 31st, 1903, under the sanitary regulations provided by these States and Territories and permitted by the local authorities in charge, provided that no such movement of

Southern cattle shall be allowed into any of these States or Territories where proper local regulations are not enforced. (3) All cattle from the Quarantine District, destined to points outside of the States and Territories above named, may be shipped, without inspection, between November 1st, 1902, and January 31st, 1903, inclusive, and without restrictions other than may be enforced by local regulations at point of destination. (4) We recommend that cattle from the two northern tiers of counties in Arkansas be admitted into the State of Missouri by inspection from February 1st to March 31st, 1903."

THE KILLING OF AN ELEPHANT.—Dr. Edward N. Leavy, Veterinarian to the Central Park Zoo, New York, has responded to our request for an official description of the destruction of the elephant "Tom" as follows: "Dangerous 'Tom,' the three-ton elephant at Central Park Zoo, heavily chained by each foot to the floor, was put to death Oct. 2, 1902, by the administration of five 100-grain capsules and eighteen 5-grain capsules of cyanide of potassium, a total of 590 grains, the capsules being hidden in his morning meal of bran mash. The enormous dose given in this instance was simply due to the fact that I wanted to make sure of death in as short a space of time as possible, it being remembered that 30 grains of cyanide administered some years ago to 'Tip,' the park elephant, took several hours to cause death. At just 8.44 the poison was taken, and in eight minutes began to show effect. 'Tom's' ears flapped uneasily, his eyes dilated, his sides shivered in a convulsion and he raised his head and trumpeted. After this he appeared to grow stronger, but only temporarily, as just eleven minutes from the time of taking the poison he had another convulsion, which was more severe than the first. Two minutes later the legs gave way and he toppled over, breaking his right tusk off as he fell. He stood up weakly, swung his head impatiently, trumpeted, shivered ponderously and collapsed. Again he arose and tried to stand. Eighteen minutes had now elapsed, and the poison was working with swifter impetus. 'Tom' could not stand long this time, but tumbled in a heap, struggled to his feet, and for the fourth time went down. Nearly twenty minutes had now passed, but 'Tom,' breathing hard, struggled slowly up again, shook himself and stood erect. Four minutes more and he had his fifth convulsion and fall. He lay prone now, and, though he tried hard, could not arise. At 9.09 he had a spasm that was a sign of the end. Sixteen minutes later the death rattle was heard, and

in five minutes 'Tom' was dead. Death took place exactly 56 minutes after taking the dose."

WHAT MIGHT HAVE BEEN.—The will and codicil of Lamont G. Burnham, the retired coal merchant, filed in the Suffolk Probate Office, contains a bequest of $150,000 to the Boston City Hospital, "to construct and equip upon the hospital grounds a building to be known as the Lamont G. Burnham ward, for such uses and purposes as the Trustees of said hospital shall in their discretion determine." The money was originally a gift to Harvard College, the will being drawn Nov. 1, 1900, but was revoked by a codicil, Dec. 2, 1901, which gave the sum to the City Hospital. It is in the 13th clause of the will that $150,000 is bequeathed to the President and Fellows of Harvard College, $100,000 of which is for the purchase of land, conveniently located in the city of Boston, and for the construction and maintenance of a veterinary hospital to be named after him. The balance of the gift, according to the will, was to be used in the establishing of a fund to be known as the "L. G. Burnham Fund," the income of which will be utilized for free clinics for animals. Under the 14th clause of the will the testator provides "in case a veterinary hospital shall be established and a suitable provision be made for the said college for the practice and teaching of veterinary science and medicine prior to my decease—questions which shall be determined finally by my executors—then I give said sum of $150,000 to the Boston City Hospital." The words as above quoted follow. The codicil revoking the gift to Harvard reads: "Whereas, by the said will, in the thirteenth paragraph, I give to the President and Fellows of Harvard College the sum of $150,000 for the establishment and maintenance of a veterinary hospital upon certain conditions mentioned therein, I hereby revoke said legacies and bequeath the sum of $150,000 to the Boston City Hospital for the purposes and conditions named in paragraph 15 of this will." The will was dated Nov. 1, 1900, and the codicil was executed Dec. 2, 1901. The executors are Maria Burnham, W. M. Bunting and W. P. Holcombe of Boston, and H. P. Sprague, of Swampscott. Mr. Burnham's reason for revoking his bequest to Harvard College is not made public, but it is understood that a movement for a veterinary hospital in connection with the medical college having been suggested and discussed developed considerable opposition, and in consequence of this opposition, Mr. Burnham decided to revoke the bequest and give the $150,000 to the City Hospital.—(*Boston Globe*).

PTOMAINE POISONING.—Alex. Rixa, M. D., of New York, contributes the following to the *Medical Summary*, of May, 1902: "During the past summer I had, perchance, more cases of ptomaine poisoning than in all my previous twenty-nine years of active practice. I presume that the prevalence was greatly due to the extraordinary heat of this summer. Notwithstanding the severity of some of the cases, my patients all recovered. Before entering into a detailed description of some of the most severe cases, a definition of the word 'ptomaine,' with some views of competent authors, will be well placed here. 'Ptomaine,' says V. C. Vaughan, 'may be defined as an organic chemical compound, basic in character and formed by the action of bacteria on nitrogenous matter.' He further states that 'some fish are always poisonous. Others are poisonous, or at least markedly so, only during the spawning season. Still others are subject to epidemic bacterial diseases, and those affected with certain of these diseases furnish flesh that is toxic to man, or, in other words, the bacterial disease is transmitted to man with his food. Lastly, fish, like other kinds of meat, may become infected with saprophytic germs that may harm man.' Schmidt says: 'The poisonous substance is not distributed throughout the animal, but is confined to certain parts. The poisonous portion cannot be distinguished from the non-poisonous, either macroscopically or microscopically.' I treated altogether twelve cases, of which nine were fish, and three lobster poisoning. The best illustration of a severe case of fish poisoning, is the case of William R., a grocer, thirty-two years of age, of robust and good health. He made his lunch of fish (none in the family could give me any information about the class of fish). It was an unusually hot day, in the month of July. He felt no discomfort until after midnight that day, when he was awakened by nausea and griping pain in his bowels. Soon vomiting set in of mucus, colored with bile. When I was summoned, I found the man with cold perspiration pouring down his face. Soon after, fever set in to a temperature of 102; pulse, 140; respiration about 40, shallow and irregular. Pain in the stomach and intestines, with great sensitiveness on pressure. I proceeded to wash his stomach and large intestines, administering right after a dose of five grains of calomel, following it up, the coming morning, with a bottle of citrate of magnesia, for the cleansing of the small intestines. Morning's temperature, 101; pulse, 130; with excessive tenderness to the digestive tract. Second day, temperature the same, pulse more firm;

sensitiveness to stomach and bowels diminished; having had a number of watery stools during previous day and night. I prescribed an antiseptic intestinal wash, Glycozone, two ounces, hot water, twenty-four ounces, for mornings and evenings. At my evening's call the temperature was 100; pulse, 110; respiration, 28. Having had some favorable experience with the internal use of Glycozone in acute gastritis, I then prescribed a teaspoonful to be given, diluted with water, every three hours. This treatment was kept up for a week until all unfavorable symptoms disappeared. The other case of serious nature was a lobster poisoning. Mrs. M. S., about twenty-five years of age, was eating a 'fresh' lobster in a first-class restaurant, at night, after a theater performance. She felt some discomfort right after eating it, but thought to counteract it by drinking a big dose of whiskey. She slept all night without disturbance. However, in the morning, when I was summoned, I found her suffering from nausea, vertigo, ringing in the ears, 'like big bells,' as she expressed it, pain in all the joints, and griping pain in the bowels; no stool. Temperature, 101.5; pulse, 140; respiration, 36. The same treatment as above was prescribed, and the woman made a quick recovery. All other cases were treated similarly, with gratifying results. However, taking good advice from my first case, I started with the antiseptic treatment at once, as I don't know of any better remedy to stop vomiting than Glycozone."

THE SOAKING-TUB.—Around the stable a soaking-tub seems to be a necessity, judging from the frequency of its use. It is generally regarded as a valuable adjunct in the treatment of almost all abnormal or diseased conditions of the feet. It is often unclean—often filthy, and in this condition may be responsible for infection of wounds, that would otherwise have remained sterile. If you use the soaking-tub, see that it is clean and well disinfected. Where creolin or any of its many imitations are deemed of insufficient strength for this purpose, formalin will be found effective. A beer, wine or whisky barrel sawed in two, provides this article of stable furniture. Originally clean and presentable, it becomes from use and environment a discolored and grimy object. It is in this latter and ordinarily normal condition that it invariably presents itself, and while on a tour last season and looking over a veterinary establishment equipped and maintained by one of the richest states, on passing through a ward of the hospital my companion —a well known practitioner—exclaimed: "The same old dirty

soaking-tub." It is questionable as to whether the soaking-tub deserves the widespread approbation and patronage which it receives. It has, however, insinuated itself to such an extent into the natures of those connected with horses, that when any lesion of the foot occurs, be it simple or grave, the first impulse on the part of the attendant is, to "put him in the tub," and into the tub he goes. In doing this he is but following an established stable precedent—a custom that is recognized and practiced in the infirmary of the veterinary school with slight improvement over that observed in the stable of the common teamster. Considering the tendency on the part of the profession nowadays, to forsake antiquated customs and traditions, it is not inopportune to suggest that it is high time to dispense with the tub. In the average case, the benefits arising from the foot-bath are extremely doubtful and there is no disputing the fact that much unnecessary misery and often the most cruel suffering, followed by permanent disability, result from its use. The practice of placing a severely lame horse in a bath, ofttimes freely polluted with his own excrement, and tying him for several hours in a constrained position, is neither edifying to the observer nor conducive to the animal's well-being. What practitioner has prescribed the foot-bath in laminitis without observing the horse evince his agony by swaying backwards and forwards, during which motion, the traction of the perforans tendons ensures the drawing downwards of the pedal bones and tends to cause their protrusion through the softened soles! Again, in cases of nail puncture, quarter-cracks, toe-cracks and other forms of pododermatitis where infection is deeply implanted in the foot and consequent great pain results, the horse stands in the tub cross-tied, shackled and quivering and on being released and turned into a bedded stall, he immediately drops, frequently from sheer exhaustion. While opposed to the use of the tub, the writer is not prepared to submit anything novel in the way of a substitute. The object of this short article is, firstly, to direct attention to a practice the recognition of which is reproachful to us as a profession, and, secondly, to insist that local dressings composed of such materials as absorbent cotton, oakum, felt, woolen stuffs, burlap, etc., properly bound to the feet and kept thoroughly wetted, are preferable to tubbing. If beneficial effects accrue from the use of the tub they are directly attributable to one or more of the following agencies:—1, Moisture; 2, Antisepsis; 3, Heat; 4, Cold. As moisture in this case practically means water, it may be argued that

it is a matter of minor consequence as to where that moisture comes from, provided it is sufficient to thoroughly soften the hoof horn. It is not, however, the agent that is objected to, but the manner of administering it. Knowing what we do regarding the hygrometry of the hoof, it can be demonstrated that a felt boot saturated with water, will, say during twelve hours, supply as much moisture as a ten-gallon soaking-tub, and that, too, without inconvenience to the animal. If such is the case, then, the boot is preferable to the tub. Should the condition of the foot demand it, dissolve an antiseptic in the water, then thickly invest the hoof with absorbent cotton dressings, covered with oakum and bandages, and saturate. It is a current belief that antiseptic agents mixed in the water of the soaking-tub, deeply penetrate fistulous tracks and punctured wounds and have a distinctly beneficial effect, by arresting sepsis. Maybe they do, but if so the filth that is so often observed suspended in the bath must necessarily permeate the same openings, so it is debatable as to whether the virtues of the one would counteract the evil effects of the other. In ordinary tubbing, warm water tends to cool rapidly and cold water becomes elevated in temperature, consequently the benefits derived from the one or the other are of a more or less precarious character. Heat or cold, as the case may require, can be applied to the feet in conjunction with the dressings alluded to, and in case where a horse is suffering great pain and persistently assumes the recumbent position, water can be regularly used in this manner without subjecting him to the tortures of the tub. In the successful treatment of the average case of foot trouble, decumbence should be by all means encouraged. Remembering that the feet receive the weight of the entire superstructure and that when irritated from whatever cause, their dependent situation determines an increased blood flow in their direction, everything possible should be done to incite the horse to lie, this being especially the case where more than one foot is involved. With this end in view a roomy stall—a box stall if possible—should be provided, and a deep dry bed given. Plenty of room and plenty of bedding, will tempt any sore-footed horse to lie, and in this position with his feet incased in clean moist dressings, his chances of recovery are not only enhanced, but often assured; and incidentally, were he capable of articulation, his thanks would be expressed for his delivery from "the same old dirty tub."—(*Joseph Hughes, M. R. C. V. S., in Chicago Veterinary College Quarterly Bulletin.*)

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